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October 14, 2020 ***SUBMITTED VIA STEERS***

Air Permits Initial Review Team (APIRT)
Texas Commission on Environmental Quality (TCEQ)
12100 Park 35 Circle, MC-161
Building C, Third Floor, Room 300 W
Austin, Texas 78753

Subject: NSR Permit Renewal and Amendment Application
Permit No. 92403
Third Coast Packaging, Inc. Pearland Facility
Drum and Tote Packaging Facility
Pearland, Brazoria County, Texas
Regulated Entity Number: RN102419330
Customer Reference Number: CN600398150

On behalf of Third Coast Packaging, Inc. (Third Coast), TRC Environmental Corporation (TRC) hereby submits the following minor New Source Review (NSR) air quality permit application to renew and amend NSR Permit No. 92403 pursuant to 30 TAC Chapter 116, Subchapter D and Subchapter B requirements, respectively. The subject NSR permit authorizes a drum and tote packaging facility located in Pearland, Brazoria County, Texas.

An electronic version of the application, including the Excel workbook *Form PI-1 General Application* (version 4.0), Excel *Electronic Modeling Evaluation Workbook (EMEW)* for non-SCREEN3 (version 2.3), and *Appendix B - Excel Emission Calculations* workbook has been submitted to TCEQ Air Permits Division via STEERS e-Permits, and the appropriate permit application fee was paid electronically during the online submission.

Attached to this letter you will find a complete application with all required administrative and technical information. Should you have any questions regarding this submittal, please contact me at 713-244-1039 or via email at estanko@trccompanies.com.

Sincerely,
TRC Environmental Corporation

Elizabeth Stanko
Senior Project Manager

Attachments

cc: Air Section Manager, TCEQ Region 12, Houston (STEERS)
Director, Environmental Health, Brazoria County Health Department
Mr. Edgardo Cruz HSSEQ Director, Third Coast Packaging, Inc. (Electronic)

Application for Renewal and Amendment of NSR Permit No. 92403

Drum and Tote Packaging Facility

Pearland, Brazoria County, Texas

October 2020

Prepared For
Third Coast Packaging, Inc.

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Section 1
Introduction

1.1 Overview of Permitted Source

Third Coast Packaging, Inc. (Third Coast) is a specialized batch reaction, contract blending, storage, and packaging facility located in Pearland, Brazoria County, Texas. Third Coast provides bulk liquid storage and handling services for the fine chemical and petrochemical industry. The site currently operates under Texas Commission on Environmental Quality (TCEQ) New Source Review (NSR) Permit No. 92403, NSR Permit No. 149679, as well as multiple Permit-by-Rule (PBR) registrations.

Third Coast currently operates an automated drum and tote filling machine that is authorized by NSR Permit No. 92403 (initially issued in February 2011 and revised in January 2018), which is called the *Feige* filler. The *Feige* automated filling machine is authorized to package a variety of chemical products into totes and drums, which are controlled by a recuperative thermal oxidizer (RTO) and a scrubber system (EPN RTO-SCRUB), as applicable, depending on the chemical product being packaged.[1]

In January 2020, a second automated drum and tote filling machine was authorized and constructed via PBR Registration No. 159633 called the *PACK'R* filler, which is controlled by the same RTO and scrubber system (EPN RTO-SCRUB). With this renewal and amendment application, the *PACK'R* system permit authorization will be rolled into NSR Permit No. 92403. There will be no changes to the existing control equipment with this project.

1.2 Purpose of the Permit Application

Third Coast is requesting to renew NSR Permit No. 92403, which has a renewal date of February 15, 2021. This renewal application is being submitted prior to the permit expiration date in accordance with Title 30 of the Texas Administrative Code (30 TAC) Chapter 116, Subchapter D. An extension request for submittal of the renewal application was submitted and approved by TCEQ on August 3, 2020, which extends the renewal application due date to October 15, 2020. In addition to the renewal, a concurrent permit amendment application is being submitted in accordance with 30 TAC Chapter 116, Subchapter B to consolidate by incorporation PBR Registration No. 159633 into NSR Permit 92403.

[1] NSR Permit 92403, Attachments II, III, and IV, list the chemical compounds that must be controlled during packaging operations. Chemicals listed in Attachments II, III, and IV are routed to either: the RTO; the RTO and two-stage quench scrubber; or the scrubber system alone, respectively, for vapor control and destruction.

Third Coast proposes to accomplish the following objectives with this permit renewal and amendment application:

- Renew NSR Permit 92403 pursuant to 30 TAC Chapter 116, Subchapter D requirements.
- Consolidate by incorporation PBR Registration No. 159633 into NSR Permit 92403.
- Update the permit emission calculations and chemical attachment lists to include chemicals authorized via the chemical flexibility provision detailed in Special Condition 4.
- Update the RTO combustion calculations to account for sulfur dioxide (SO_2) generated by the combustion of sulfur-containing compounds (i.e., mercaptans) authorized in Attachments II and III of the NSR permit.
- Update the permit's chemical attachment lists to move mercaptans from Attachment II to Attachment III such that SO_2 generated by combustion is controlled by the two-stage quench scrubber.
- Update the unit impacts for EPN RTO-SCRUB listed in Special Condition 4 based on the modeling impacts analysis submitted in support of this permitting action.

The proposed project is a minor NSR project at an existing minor source. The project emission increases are below major source thresholds for all pollutants. The project will result in emissions of volatile organic compounds (VOC), exempt solvents (ES), hydrochloric acid (HCl), nitrogen oxides (NO_X), carbon monoxide (CO), SO_2, and particulate matter (PM), including particulate matter with diameters of 10 microns or less (PM_{10}), and particulate matter with diameters of 2.5 microns or less ($PM_{2.5}$).

1.3 TCEQ Forms and Information

This application has been prepared in accordance with 30 TAC Chapter 116, Subchapter B and D. A completed Excel workbook *Form PI-1 General Application* (version 4.0) with additional support information is included in this submittal. A discussion of federal permitting applicability, public notice, TCEQ permit application fees, and the modeling impacts analysis are provided in Sections 1.5 through 1.8 of this section, respectively.

An area map indicating the site location and a plot plan identifying the location of the project emission sources are included in Figures 1-1 and 1-2 of this section, respectively. A project description and process flow diagrams are presented in Section 2. Emission calculations are described in Section 3 of this application. The analysis of Best Available Control Technology (BACT) is provided in the *Form PI-1 General Application*. Identification of applicable federal and state regulatory requirements and compliance with these requirements is demonstrated in Section 4.

To assist in the review of this submittal, the following appendices are included:

1.3.1 PI-1 General Application (Appendix A)

Appendix A of this application contains the *Form PI-1 General Application*; Excel workbook file (version 4.0), which has been submitted electronically through the State of Texas Environmental Electronic Reporting System (STEERS) e-Permits system.

1.3.2 Emissions Calculations (Appendix B)

The emission calculation methodologies for the emission sources covered by this air permit are described in Section 3. The emission calculations Excel spreadsheet has been submitted electronically to TCEQ Air Permits via STEERS. Documentation submitted in the emissions calculations section (Section 3) represents a material balance. Therefore, a Material Balance Table (Table 2) has not been included with this application.

1.3.3 Impacts Analysis - EMEW (Appendix C)

Appendix C of this application contains the *Electronic Modeling Evaluation Workbook* (EMEW) for non-SCREEN3 (version 2.3) and modeling attachments submitted in support of this permitting action. Air dispersion modeling using AERMOD v19191 was performed for assessing off-property impacts, which is discussed in Section 1.8. Additionally, an Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files. This spreadsheet includes the both the emissions rates and UIM calculations.

1.3.4 Current Permit Authorizations (Appendix D)

A copy of the current NSR Permit 92403 authorization and the PBR Registration No. 159633 authorization letter with PBR emissions summary is provided in Appendix D of this application.

1.4 Summary of Emission Changes

The proposed amendment will result in changes in allowable emission rates. There are no proposed increases in annual permitted emission rates of VOC, NO_X, CO, SO_2, PM, PM_{10}, and $PM_{2.5}$ associated with this project. There are proposed short-term increases in VOC and proposed short-term and annual increase in ES and HCl emissions. A summary of the current NSR MAERT limits, PBR authorized emission rates, proposed allowable emission rates, and overall changes in allowable emission rates is provided in **Table 1-1**.

Third Coast Packaging, Inc.
NSR Permit 92403 Renewal and Amendment Application
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Table 1-1: Project Emissions Summary

Emission Point Number (EPN)	Source Description	Air Contaminant Name	NSR Permit 92403 MAERT Emissions [1]		PBR Registration 159633 Emissions [2]		Current Authorized Emission Rates		Proposed Allowable NSR Permit 92403 Emission Rates		Change in Permitted Emission Rates	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RTO-SCRUB	Emissions from Automated Drum and Tote Filling	VOC	1.71	1.38	2.89	1.42	4.60	2.80	5.12	2.71	0.53	-0.10
		ES	0.42	0.45	0.31	0.35	0.73	0.80	1.25	2.32	0.52	1.53
		HCl	0.11	0.04	0.00	0.00	0.11	0.04	0.32	0.49	0.21	0.45
RTO-SCRUB	Thermal Oxidizer Emissions from Combustion	NOx	0.37	1.01	0.45	1.70	0.82	2.71	0.54	1.98	-0.28	-0.72
		CO	0.27	0.83	0.38	1.43	0.65	2.26	0.45	1.67	-0.19	-0.59
		SO_2	0.01	0.01	1.00	3.31	1.01	3.32	0.36	0.67	-0.65	-2.65
		VOC	0.02	0.06	0.02	0.07	0.04	0.13	0.02	0.07	-0.02	-0.06
		$PM/PM_{10}/PM_{2.5}$	0.03	0.08	0.03	0.13	0.06	0.21	0.04	0.15	-0.02	-0.06
FUG	Equipment Fugitives	VOC	0.01	0.02	0.003	0.01	0.01	0.03	0.01	0.03	-0.01	-0.01
		VOC					**4.65**	**2.97**	**5.15**	**2.81**	**0.50**	***-0.16***
		ES					**0.73**	**0.80**	**1.25**	**2.32**	**0.52**	**1.53**
		HCl					**0.11**	**0.04**	**0.32**	**0.49**	**0.21**	**0.45**
		NOx					**0.82**	**2.71**	**0.54**	**1.98**	***-0.28***	***-0.72***
		CO					**0.65**	**2.26**	**0.45**	**1.67**	***-0.19***	***-0.59***
		SO_2					**1.01**	**3.32**	**0.36**	**0.67**	***-0.65***	***-2.65***
		$PM/PM_{10}/PM_{2.5}$					**0.06**	**0.21**	**0.04**	**0.15**	***-0.02***	***-0.06***

[1] Maximum Allowable Emission Rate Table (MAERT) emissions limits per NSR Permit 92403 dated August 8, 2011.

[2] Permit by Rule (PBR) Registration No. 159633 authorized emissions dated January 27, 2020.

1.5 Federal Permitting Applicability

The regulated NSR pollutants evaluated for the proposed project include VOC, NO_X, CO, SO_2, PM, PM_{10}, and $PM_{2.5}$. The Third Coast Pearland site is not an existing major source, and this project does not constitute a major source in and of itself. The Nonattainment New Source Review (NNSR) and Prevention of Significant Deterioration (PSD) applicability evaluations are discussed in the following sections.

1.5.1 NNSR Applicability

Third Coast is located in Pearland, Brazoria County, Texas. Third Coast is not an existing major source for nonattainment pollutant emissions and is a minor source for all pollutants. Brazoria County is designated as a serious nonattainment area for ozone under the eight-hour standard, for which emissions of NO_X and VOC are regulated as precursors to ozone. Brazoria County is designated an unclassifiable/attainment area for all other criteria pollutants.

A NNSR applicability evaluation was conducted for NOx and VOC emissions. As demonstrated per the Federal Applicability Tab of the electronic *PI-1 General Application* spreadsheet, project emission increases for NOx and VOC are less than five (5) tpy, and the proposed allowable emissions of NOx and VOC for this NSR permit are less than five (5) tpy, which is less than the 50 tpy major source definition. Since this site is a minor source of VOC and NOx, netting and NNSR is not applicable.

1.5.2 PSD Applicability

The Third Coast Pearland site is not considered to be among the 28 designated source categories as listed in 40 Code of Federal Regulations (CFR) §51.166(b)(1) and is not an existing major source of any PSD pollutant. The Third Coast Pearland site has allowable emissions below the 250 tpy PSD threshold. Since the facility is not an existing major source and the project is not a major source, PSD review does not apply.

1.5.3 Hazardous Air Pollutants (HAPs)

The definition of an affected source subject to federal standards of review requirements includes stationary sources which emit 10 tons or more of any individual hazardous air pollutant (HAP), or 25 tons or more of any combination of HAPs and for which no MACT standards have been promulgated under 40 CFR 63. The Third Coast Pearland site does not emit 10 tons or more of any individual HAP, or 25 tons or more of any combination of HAPs, therefore this is not applicable to Third Coast.

The federal applicability analysis is shown in **Table 1-2**.

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Table 1-2: Federal NNSR and PSD Applicability

Criteria Pollutant	Increases in Permitted Emissions [1] (tpy)	Total Proposed Allowable Emissions [2] (tpy)	Nonattainment Major Source Threshold [3] (tpy)	PSD Major Source Threshold [4] (tpy)	NNSR/ PSD Applicable (Yes/No)
CO	0	1.67	--	250	No
NO_X	0	1.98	50	250	No
SO_2	0	0.67	--	250	No
PM	0	0.15	--	250	No
PM_{10}	0	0.15	--	250	No
$PM_{2.5}$	0	0.15	--	250	No
VOC	0	2.81	50	--	No

[1] There are no proposed increases in annual permitted allowable emission rates of VOC, NO_X, CO, SO_2, PM, PM_{10}, and $PM_{2.5}$ associated with this project.

[2] The total proposed allowable emissions from the permitted sources are less than the Nonattainment and PSD Major Source Thresholds (tpy), and as such, federal review is not triggered.

[3] Serious Nonattainment Area Classification for Ozone (as VOC or NOx); Site is a minor source for VOC and NOx and is located in HGB ozone nonattainment area.

[4] The site is an un-named source located in Brazoria County, and is a minor source for all pollutants.

1.6 Public Notice

Air quality permit applications are required to comply with the Public Notice of Air Quality Application requirements of 30 TAC Chapter 39, Subchapters H and K. In accordance with Texas Clean Air Act §382.056, Third Coast will publish notice of intent to obtain a permit renewal and concurrent amendment application. Third Coast will comply with all public notification requirements in accordance with 30 TAC Chapter 39.

1.7 Permit Fees

Based on the Fees tab of the of the Excel *PI-1 General Application*, the permit renewal fee was determined to be $778.50 and the amendment fee was determined to be $900 (minimum fee). The permit renewal and amendment fees have been paid online through the TCEQ ePay system during the online submission via STEERS e-Permits.

1.8 Impacts Analysis

In accordance with the requirements in 30 TAC §116.111(a)(2)(J), atmospheric dispersion modeling may be required to determine air quality impacts from a proposed new facility or source modification. Third Coast performed refined air dispersion modeling, which is included in the EMEW in Appendix C. The following modeling analyses steps were performed:

- First, generic modeling using Unit Impact Multipliers (UIMs) was performed in order to evaluate model-predicted impacts from project increases and perform a Modeling and Effects Review Applicability (MERA) analysis to determine the site-wide modeling requirements for compounds with an increase in emissions. An Excel spreadsheet of the UIM calculations is included with the electronic modeling files in this submittal;
- A MERA Step 2 (de minimis increase) was performed for compounds with a project increase. The modeling attachments include a detailed description of the MERA Step 2 demonstration, including speciated emissions rates, which are also in the Excel spreadsheet UIM calculations;
- A MERA Step 3 (10-percent of Effects Screening Level [ESL] Evaluation) was performed for compounds with a project increase. The modeling attachments include a detailed description of the MERA Step 3 demonstration, including speciated emissions rates, which are also in the Excel spreadsheet UIM calculations;
- Site-wide modeling was initially performed using UIMs for compounds with project increases that did not fall out under MERA Step 3;
- A minor source health effects evaluation was performed for three compounds where sitewide unit modeling using UIMs indicated potential impacts greater than two times the ESL, which were piperazine (CAS 110-85-0), toluene diisocyanate (CAS 26471-62-5) and propyl mercaptan, n- (CAS 75-33-2);

- A NAAQS Significant Impact Level (SIL) analysis was performed for project-related increases in criteria pollutants. As impacts for all pollutants and averaging periods were below the applicability SILs, no further NAAQS review was required; and
- A State Property Line Analysis was performed for project-related increases in emissions of SO_2. As the impacts were below 2-percent of the standard, and therefore no further review was required.

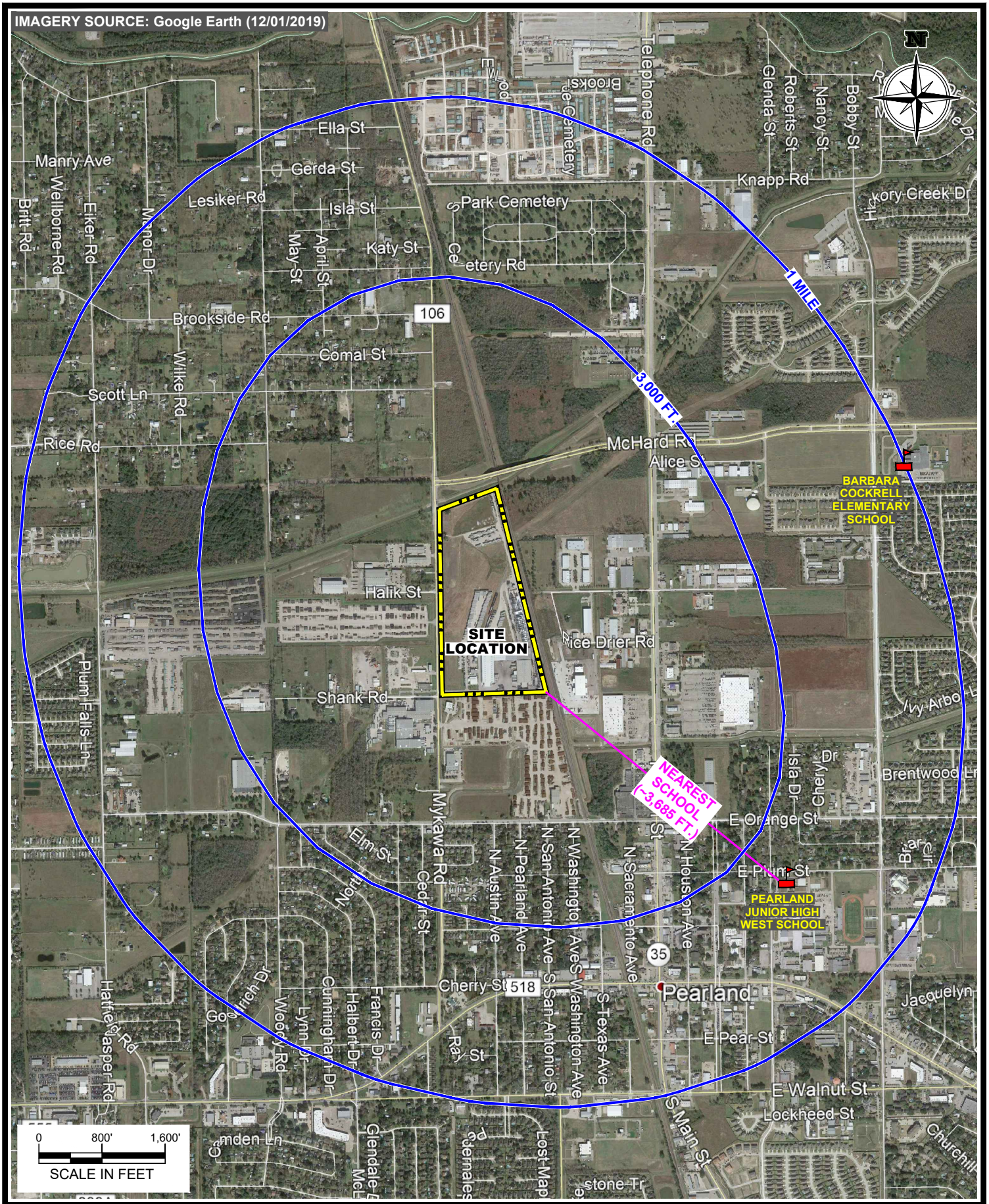
Electronic versions of all input and output files for each dispersion modeling run, including data, grid, plot files, meteorological data files and plot plans with downwash structures will be submitted electronically to the TCEQ assigned permit reviewer using TCEQ's File Transfer Protocol (FTP) site.

The NSR permit has a "chemical flexibility" condition (Special Condition 4), which authorizes emissions of new chemical compounds as the products handled at Third Coast typically change based on client demands. As such, there is no emissions of new chemical species or a change in character of emissions associated with this project.

1.9 Area Map and Plot Plan

The Third Coast Pearland site is located at 1871 Mykawa Road in Pearland, Texas. The enclosed Area Map, Figure 1-1, has been included with this permit application to illustrate the location of the property and surrounding area. The area map includes a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features, industrial and non-industrial classification, and the location of the nearest schools. Figure 1-1 includes a circle of 3,000-ft radius and a circle of one-mile radius around the center of the facility. The area map includes current aerial photography to depict the land use surrounding the facility. There are no schools or sensitive receptors (i.e., hospitals, nursing homes, or childcare facilities) within a one-mile radius of the facility. The nearest school is located approximately 3,685 ft south-east of the facility.

The enclosed Plot Plan, Figure 1-2, shows the location of the emission points and their associated UTM coordinates. The plot plan is to scale and includes a true north arrow, all property lines, project emission sources, and two benchmark locations. The plot plan includes current aerial photography to show the buildings, tanks, and other process equipment located at the Pearland site.



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PHONE: 281-616-0100

PROJECT

THIRD COAST PACKAGING, INC.

Pearland, Brazoria County, Texas

SHEET TITLE

Figure 1-1

AREA LOCATION MAP

DRAWN BY:	**O. FONSEKA**
REQUEST BY:	**N. NUSSBAUM**
PROJ. No:	**377803.0000**
DATE:	**OCTOBER 2020**

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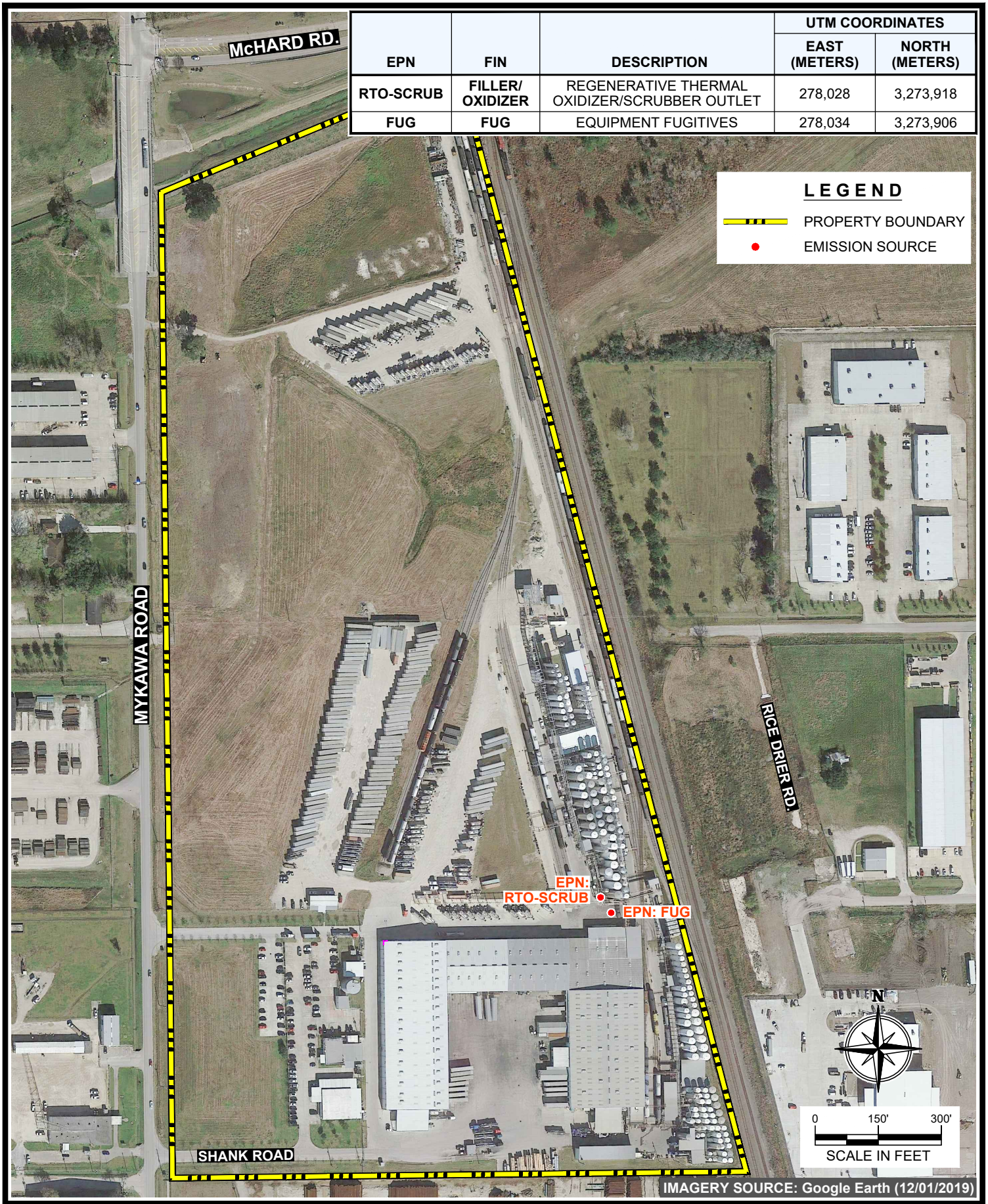
EPN	FIN	DESCRIPTION	UTM COORDINATES	
			EAST (METERS)	NORTH (METERS)
RTO-SCRUB	FILLER/ OXIDIZER	REGENERATIVE THERMAL OXIDIZER/SCRUBBER OUTLET	278,028	3,273,918
FUG	FUG	EQUIPMENT FUGITIVES	278,034	3,273,906



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PROJECT

THIRD COAST PACKAGING, INC.

Pearland, Brazoria County, Texas

SHEET TITLE

Figure 1-2

PLOT PLAN

DRAWN BY:	**O. FONSEKA**
REQUEST BY:	**N. NUSSBAUM**
PROJ. No:	**377803.0000.0000**
DATE:	**OCTOBER 2020**

HOU C:\OF-TRC\DRAFTING-CDrive\PPL-Files\Third Coast\Pearland-TX\377803\ Fig 1-2 - ThirdCoast-Pearland-TX - PLOT PLANs.dwg 10/01/20

Section 2
Process Description

Third Coast is a bulk liquid handling facility located in Pearland, Texas. Operations at the facility consist of industrial packaging, blending, storage, and loading and unloading of chemical products into drums, intermediate bulk container (IBC) totes, storage tanks, ISO-rated tanks/containers, tank trucks, and railcars at the Pearland site.

Packaging services at the Pearland site consist of chemical packaging lines for loading liquid materials into drums or IBC totes. The automated *Feige* and *PACK'R* filler machines package a variety of chemical products into totes and drums, which are controlled, as applicable, by an RTO and/or scrubber system depending on the chemical product being packaged. The chemical products handled are divided into four attachments:

- Compounds on Attachment I do not require vapor control and may be vented uncontrolled directly to the stack (EPN RTO-SCRUB) and bypass the RTO. These compounds consist of organic liquids with a true vapor pressure of less than 0.5 pound per square inch (psia) at ambient temperature;
- Compounds on Attachment II are vented to the RTO for control (EPN RTO-SCRUB). These compounds consist of organic liquids with a true vapor pressure of 0.5 psia or greater at ambient temperatures;
- Compounds on Attachment III are chlorinated organic compounds vented to the RTO and subsequently to the two-stage quench scrubber for control (EPN RTO-SCRUB); and
- Compounds on Attachment IV are chlorinated inorganic compounds controlled by the two-stage quench scrubber for control and are allowed to bypass the RTO. The EPN remains the same stack (EPN RTO-SCRUB).

The *Feige* filler and *PACK'R* filler are automated filling machines that are each housed in a full stainless-steel permanent total enclosure (PTE) with sliding doors in the in-feed and out-feed area. The drumming enclosures capture 100-percent of the vapors and route the emissions to the applicable control device. Both fillers are proposed to load the same list of chemicals in the permit attachments.

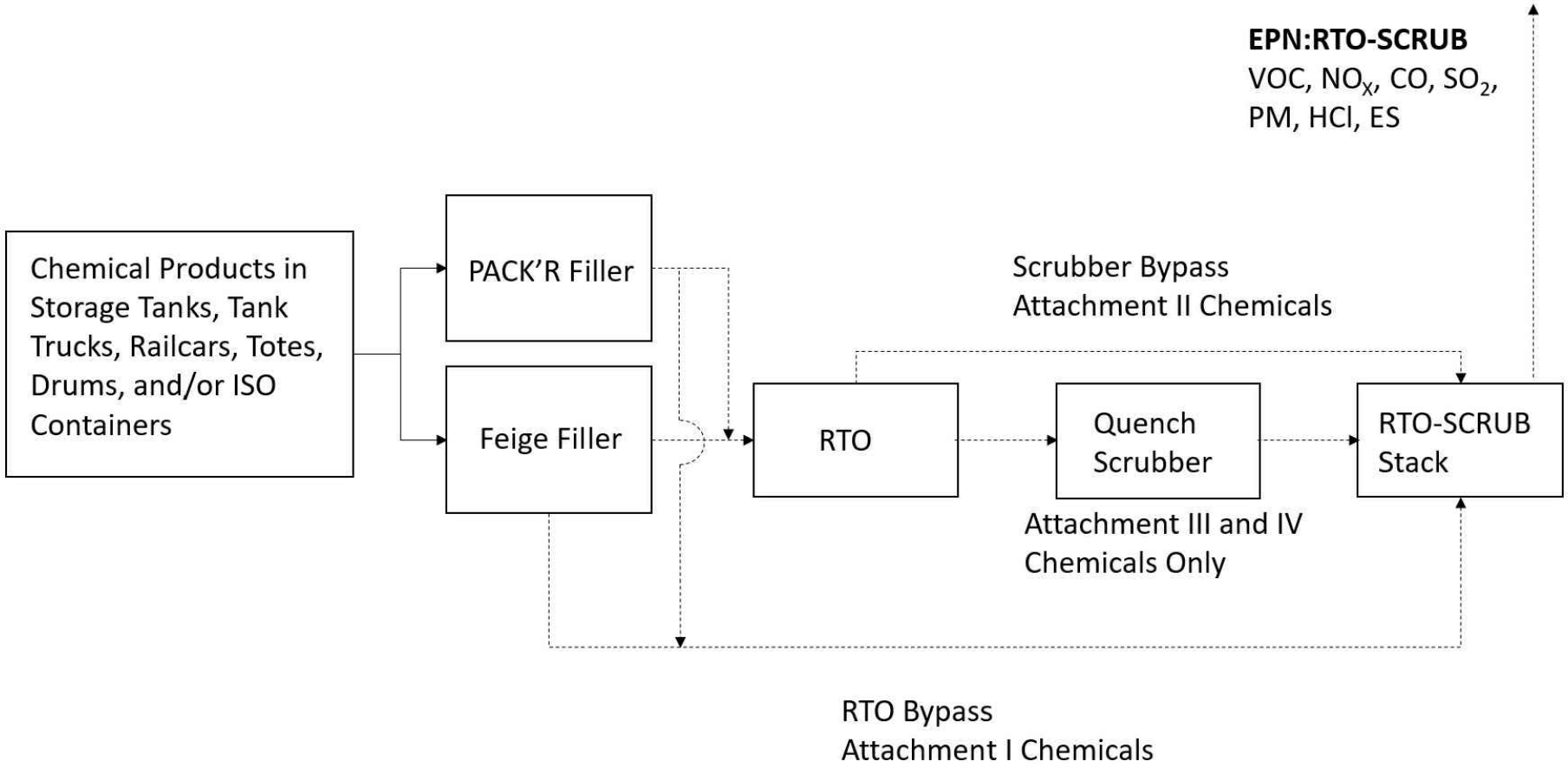
The fillers perform automatic drum and IBC tote filling operations by first centering and positioning the drums (or totes) inside the enclosure. The filling station is equipped with a camera system that automatically and reliably locates the bungholes of the drums or totes. The drums are then automatically de-bunged, filled, re-bunged and cap sealed.

Loading losses occur when loading products into drums or IBC totes, and may occur from loading any of the compounds on the chemical product list (Attachment I, Attachment II, Attachment III, and Attachment IV). When performing drum/tote filling operations of Attachment II, III, and IV compounds, the vapors displaced during loading operations are collected and routed to the RTO with quench and scrubber (EPN RTO-SCRUB). The filling operations are fully enclosed and equipped with a blower system that produces a vacuum in the filling machine during loading operations. As such, the capture efficiency is 100-percent and the booth emissions are vented directly to the oxidizer.

The RTO is a thermal oxidizing system consisting of a combustion chamber with a shell and tube heat pre-heat exchanger. The oxidizer achieves high levels of destruction efficiency by the design of the system giving equal importance to three oxidation parameters; temperature, residence time, and turbulence. The oxidizer effectively controls emissions of the organic compounds (i.e. VOC and ES) and will achieve a destruction removal efficiency (DRE) of 99-percent for these compounds.

The two-stage quench scrubber was added to the oxidizer in order to achieve a high destruction efficiency of chlorinated or fluorinated organic compounds, as well as SO_2 and acid gasses. The two-stage quench scrubber in combination with the oxidizer will achieve a DRE of 99-percent for these compounds. The scrubber system is comprised of a quench section and a scrubbing section that follows the oxidizer, which are configured and operated to avoid condensation of water from the quenched stream in the scrubbing section. The process gas stream from the oxidizer, quench, and scrubber will be routed to one single stack (EPN RTO-SCRUB).

A process flow diagram is included as Figure 2-1.



PROJECT:
THIRD COAST PACKAGING, INC.
Pearland, Brazoria County, Texas

TITLE:
PROCESS FLOW DIAGRAM

DRAWN BY:	O. FONSEKA	PROJECT No.:	377803 / 000000 / 000000
REQUEST BY:	N. NUSSBAUM		
PROJECT-MGR:	E. STANKO		**FIGURE 2-1**
DATE:	OCTOBER 2020		

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FILE: Fig 2-1 - ThirdCoast-Pearland-TX - PFDs.dwg

Section 3
Emission Calculations

This section of the application contains a description of the procedures, methods, and equations that were used to calculate air emissions from the packaging and liquid loading operations.

A summary of the proposed maximum allowable emission rates (MAER) in pounds per hour (lb/hr) and tons per year (tpy) for all the emissions sources authorized under Permit No. 92403 is provided in the Excel workbook *Form PI-1 General Application* located in Appendix A. The Excel emissions calculations workbook has been submitted electronically to TCEQ Air Permits as Appendix B to this application.

3.1 Liquid Loading Emissions

The drum and tote filling of liquid chemical products results in VOC, exempt solvents (ES), and hydrochloric acid (HCl) emissions called loading losses. Loading losses occur as organic vapors in empty drums/totes are displaced to the atmosphere by the liquid being loaded into the drums or totes. These vapors are generated in the drums/totes as the new product is being loaded. The quantity of evaporative losses from the drum/tote loading operations is a function of the method of loading the new cargo and the physical and chemical characteristics of the chemical that is being loaded.

Third Coast uses the submerged fill pipe method for the drum loading process with the *Feige* and *PACK'R* fillers. In the submerged fill pipe method, the fill pipe extends nearly to the bottom of the drum/tote. During the submerged fill method, the fill pipe opening is below the liquid surface level. Therefore, liquid turbulence is controlled significantly resulting in low vapor generation.

Volatile organic compound (VOC) emissions resulting from loading liquid materials into drums or totes with the *Feige* and *PACK'R* fillers were calculated using a loading loss (L_L) equation. Emissions were broken down into short-term emissions (lb/hr) and annual emissions (tpy). Short-term emissions were estimated by using the maximum expected vapor pressure and temperature of the compound being loaded and the maximum expected pumping rate of the *Feige* and *PACK'R* filler, which are 3,300 gallons per hour (gal/hr) and 6,600 gal/hr, respectively. For the maximum hourly emission calculations, the true vapor pressure at 100°F for each compound was used.

Annual emissions were estimated using the true vapor pressure at 70ºF for each compound, which was used to calculate the average annual loading losses (in lb/10^3 gal). Emissions from all loading were estimated using the following equation, which is presented in Section 5.2 of EPA Document AP-42.

The saturation factor, S, represents the expelled vapors fractional approach to saturation, and it accounts for the variations observed in emission rates from the different unloading and loading methods. Because the mode of operation used by Third Coast is the submerged loading of clean drums, the S factor used was 0.5, following the guidance in AP-42.

Third Coast proposes to control drum loading emissions of Attachment II, III, and IV compounds through use of the RTO and two-stage Quench Scrubber (EPN RTO-SCRUB). *Feige* and *PACK'R* filling operations occur in an enclosed booth equipped with a blower system that produces a vacuum in the drum/tote filling machine during loading operations. As such, the capture efficiency is 100-percent and the booth is vented directly to the control equipment. The RTO and scrubber system have a DRE of 99-percent.

Drum and tote filling emission calculations for the chemicals listed in Attachment I, Attachment II, Attachment III, and Attachment IV are provided in **Tables B-1, B-2, B-3, B-4, B-5, B-6, B-7, and B-8** of Appendix B.

3.2 Products of Combustion Emissions

Emissions associated with the combustion of the waste gas stream and natural gas (to maintain the RTO at the proper operating temperature) were calculated using EPA Document AP-42 emission factors. The RTO will emit the following combustion products from the burning of natural gas and waste gas: NO_X, CO, VOC, PM_{10}, $PM_{2.5}$, and SO_2. Emission factors were chosen from EPA's AP-42 document, Table 1.4-1: Emission Factors for NO_X and CO from Natural Gas Combustion and Table 1.4-2: Emission Factors for Criteria Pollutants and from Natural Gas Combustion. Pursuant to EPA Document AP-42 Section 1.4, the average gross heating value for natural gas is 1,020 British thermal units per standard cubic foot (Btu/scf). Emissions of SO_2 from sulfur-containing chemicals in the waste gas stream was calculated stoichiometrically.

Thermal oxidizer emission calculations are provided in **Table B-9** of Appendix B.

3.3 Equipment Leak Fugitive Emissions

Piping equipment leak fugitive emission calculations were based on guidance from the TCEQ document "Air Permit Technical Guidance for Chemical Sources: Fugitive Guidance" dated June 2018 (APDG 6422). Fugitive emissions (EPN: FUG) were calculated using the TCEQ SOCMI without ethylene emission factors. Third Coast has implemented an Audio, Visual, and Olfactory (AVO) LDAR program at the Pearland facility. As such, the appropriate AVO control credits were applied for its fugitive emission calculations.

Fugitive emission calculations are provided in **Table B-10** of Appendix B.

Section 4
Regulatory Requirements Discussion

This section addresses the assurance of regulatory compliance by the facility. The requirement contained in 30 TAC Chapter 116.111(a)(2)(A)(i), states:

> *The emissions from the proposed facility will comply with all rules and regulations of the TCEQ and with the intent of the Texas Clean Air Act (TCAA), including protection of the health and property of the public.*

As outlined in the following evaluation, the emissions from the plant will comply with all rules and regulations of the TCEQ and with the intent of the TCAA, including the protection of the health and property of the public.

CHAPTER 101 GENERAL RULES

Third Coast will operate in compliance with all requirements of the TCEQ General Rules. Some notable rule compliance procedures are summarized below.

§101.3 Circumvention

There will not be the use of any mechanisms or devices to conceal or appear to minimize the effects of emissions from sources included in this application.

§101.4 Nuisance

There will be no emissions of air contaminants or combined emissions that would be expected to injure or adversely affect human health or welfare, plant or animal life, or property in any way.

§101.5 Traffic Hazard

There will be no traffic hazards or interference caused by emissions from the sources included in this application.

§101.8 Sampling

Upon request of the TCEQ, Third Coast will conduct sampling to determine the opacity, rate, composition, or concentration of the stream requested.

§101.9 Sampling Ports

Third Coast will comply with the applicable requirements related to sampling ports at the Pearland site.

§101.10 Emissions Inventory Requirements

On an annual basis, Third Coast will file the appropriate emissions inventory (EI) of the air pollutants emitted by the site via the STEERS-AEIR Web-EI reporting system, as applicable.

§101.13-19 Administrative Provisions

Third Coast will comply with the applicable requirements of these sections.

§101.20 Compliance with Environmental Protection Agency Standards

Third Coast will comply with all applicable new source performance standards, applicable emission standards for hazardous air pollutants, and conditions of any air permit issued by the EPA pursuant to 40 CFR §52.21.

§101.21 The National Primary and Secondary Ambient Air Quality Standards (NAAQS)

Third Coast will comply with all applicable requirements associated with the NAAQS.

§101.23 Alternate Emission Reduction ("Bubble") Policy

Operation of the facility will not be regulated by the Alternative Emission Reduction Policy.

§101.24 and §101.27 Inspection Fees and Emissions Fees

Third Coast will submit all appropriately assessed fees to the TCEQ for the facility in this application.

§101.26 Surcharge on Fuel Oil in Specified Boilers

The site does not have an industrial boiler capable of combusting fuel oil; therefore, the provisions of §101.26 do not apply.

§101.28 Stringency Determination for Federal Operating Permits

This application is not for a federal operating permit; therefore, this section does not apply.

§101.201 Emissions Event Reporting and Recordkeeping Requirements

Third Coast will comply with the requirements of this section, as necessary.

§101.211 Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements

Third Coast shall notify the Executive Director of the TCEQ and other appropriate air pollution control agencies of maintenance activities that are expected to cause an unauthorized emission that equals or exceeds the reportable quantity (RQ) per the requirements of §101.211(a), §101.211(b) and §101.211(c). In accordance with the requirements of §101.211(e), Third Coast shall, upon request, submit a technical plan for maintenance activities to the Executive Director of the TCEQ.

§101.221-224 Operational Requirements, Demonstrations, Actions to Reduce Excess Emissions, and Temporary Exemptions during Drought Conditions

Third Coast will comply with the requirements of these sections as necessary.

§101.231-233 Variances

Third Coast is not requesting a variance with this application; therefore, these sections do not apply.

§101.300-311 Emission Credit Banking and Trading

Third Coast will comply with the applicable requirements of this section, as necessary.

§101.330-339 Emissions Banking and Trading Allowances

These sections do not apply because this permit action does not include electric generating facilities permitted under Chapter 116, Subchapter I (relating to Electric Generating Facility Permits).

§101.350-363 Mass Emission Cap and Trade Program

Third Coast is not currently subject to 30 TAC Chapter 101, Subchapter H, Division 3, relating to the Mass Emissions Cap and Trade (MECT) Program. If the site becomes subject to this program and has one or more affected facilities subject to 30 TAC §117.2010 with a collective uncontrolled design capacity to emit 10.0 tons or more per year of NO_x, Third Coast will comply with the requirements of this section as necessary.

§101.370-379 Discrete Emission Credit Banking and Trading

Third Coast will not generate or use any discrete emission credits in association with this permit action.

§101.390-403 Highly Reactive Volatile Organic Compound Emissions Cap and Trade Program

There are no highly reactive volatile organic compounds (HRVOCs) associated with this permit application; therefore, requirements of this section do not apply.

§101.501-508 Clean Air Interstate Rule

This application does not include a stationary, fossil fuel-fired boiler or stationary, fossil fuel-fired combustion turbine meeting the applicability requirements under 40 Code of Federal Regulations Part 96, Subpart AA or Subpart AAA; therefore, these sections do not apply.

§101.600-602 Expedited Permitting

Third Coast is not requesting expedited permitting under 30 TAC §101.600-602, therefore this section is not applicable.

CHAPTER 111 CONTROL OF AIR POLLUTION FROM VISIBLE EMISSIONS AND PARTICULATE MATTER

§111.111-113 Visible Emissions

The RTO will be operated with no visible emissions and have a constant pilot flame during all times waste gas could be directed to it. Third Coast will comply with all applicable opacity limitations specified in §111.111.

§111.121-129 Incineration

The process addressed by this application does not have a solid waste incinerator; therefore, these sections do not apply.

§111.131-139 Abrasive Blasting of Water Storage Tanks Performed by Portable Operations

There is no abrasive blasting of water storage tanks associated with this application; therefore, these sections do not apply.

§111.141-149 Materials Handling, Construction, Roads, Streets, Alleys, and Parking Lots

The Pearland site is located in Brazoria County. Therefore, these sections do not apply.

§111.151-153 Emissions Limits on Nonagricultural Processes

Third Coast complies with the requirements of these sections as necessary.

§111.171-175 Emissions Limits on Agricultural Processes

There are no agricultural processes at the facility. Therefore, these sections do not apply.

§111.181-183 Exemptions for Portable or Transient Operations

The facility is not a portable or transient operation; therefore, these sections do not apply.

§111.201-221 Outdoor Burning

Outdoor burning will not be performed at the facility. Therefore, these sections do not apply.

CHAPTER 112 CONTROL OF AIR POLLUTION FROM SULFUR COMPOUNDS

Emissions of SO_2 at the Third Coast site will be in compliance with 30 TAC §112.3(a) concerning net ground level concentrations of sulfur compounds, and emissions of H_2S will be in compliance with 30 TAC §112.31 and 30 TAC §112.32 concerning net ground level concentrations of hydrogen sulfide. Third Coast will comply with any required and applicable reporting and recordkeeping requirements in 30 TAC §112.2. If requested, Third Coast will demonstrate compliance with the reporting and recordkeeping requirements for applicable SO_2 emission limits specified in §112.2.

Third Coast is not seeking an exemption under §112.4; therefore, this rule does not apply. The remaining sections of 30 TAC Chapter 112, Subchapter A do not apply to this permit application. There are no solid fossil fuel-fired steam generators or liquid fuel-fired steam generators, furnaces, or heaters associated with the proposed project; therefore, the requirements of §112.8-9 do not apply.

CHAPTER 113 STANDARDS OF PERFORMANCE FOR HAZARDOUS AIR POLLUTANTS AND FOR DESIGNATED FACILITIES AND POLLUTANTS

Subchapter B of Chapter 113 incorporates by reference National Emission Standards for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61), and Subchapter C of Chapter 113 incorporates by reference National Emissions Standards for Hazardous Air Pollutants for Source Categories (NESHAP, 40 CFR Part 63). Subchapter E of Chapter 113 incorporates by reference the Consolidated Federal Air Rule as specified in 40 CFR Part 65 for the SOCMI.

The operations at the Third Coast site will not result in the emission of any pollutants subject to NESHAP standards as promulgated under 40 CFR Part 61. Further, the 40

CFR Part 63, Maximum Achievable Control Technology (MACT) standards do not apply to any facilities in this application, and the Consolidated Federal Air Rule for SOCMI (40 CFR Part 65) is not applicable.

Therefore, this Chapter does not apply to this project.

CHAPTER 114 CONTROL OF AIR POLLUTION FROM MOTOR VEHICLES

Third Coast will operate its motor vehicles in compliance with the requirements of this regulation as implemented in the State of Texas.

CHAPTER 115 CONTROL OF AIR POLLUTION FROM VOLATILE ORGANIC COMPOUNDS

§115.110-119 Storage of Volatile Organic Compounds

Third Coast is located in the Houston-Galveston-Brazoria (HGB) ozone nonattainment area and operates storage tanks in VOC service. Therefore, several rules of this Division are applicable to this facility. Third Coast shall comply with the applicable control, monitoring, testing, recordkeeping, and reporting requirements in these sections.

§115.120-129 Vent Gas Control

Third Coast shall comply with the applicable control, monitoring, testing, recordkeeping, and reporting requirements in these sections.

§115.131-139 Water Separation

There is no water separator associated with this permit application; therefore, these regulations do not apply.

§115.140-149 Industrial Wastewater

There is no industrial wastewater processing facility associated with this permit application; therefore, these sections do not apply.

§115.152-159 Municipal Solid Waste Landfills

The facility does not operate any municipal solid waste landfill facilities; therefore, these sections do not apply.

§115.160-169 Batch Processes

The facility does not operate any batch processes; therefore, these sections do not apply.

§115.211 Emission Specifications (Loading and Unloading of VOCs)

The facility does not operate a gasoline terminal; therefore, §115.211 does not apply.

§115.212-219 Loading and Unloading of Volatile Organic Compounds

Third Coast shall comply with the applicable control, monitoring, testing, recordkeeping, and reporting requirements in these sections.

§115.221-229 Filling of Gasoline Storage Vessels (Stage I) for Motor Vehicle Fuel Dispensing Facilities

There is no motor vehicle fuel dispensing associated with the facility; therefore, these sections do not apply.

§115.234-239 Control of Volatile Organic Compound Leaks from Transport Vessels

The Pearland site is located in Brazoria County; therefore, Third Coast will comply with the applicable requirements of these sections.

§115.240-248 Control of Vehicle Refueling Emissions (Stage II) at Motor Vehicle Fuel Dispensing Facilities

There is no vehicle fueling station at the facility; therefore, these sections do not apply.

§115.252-259 Control of Reid Vapor Pressure of Gasoline

The Pearland site is not located in the El Paso area; therefore, these sections do not apply.

§115.311-319 Process Unit Turnaround and Vacuum-Producing Systems in Petroleum Refineries

The Pearland site is not a petroleum refinery; therefore, these sections do not apply.

§115.322-329 Fugitive Emission Control in Petroleum Refineries in Gregg, Nueces, and Victoria Counties

The Pearland site is not a petroleum refinery and is not located in one of these counties; therefore, these sections do not apply.

§115.352-359 Fugitive Emission Control in Petroleum Refining, Natural Gas/Gasoline Processing, and Petrochemical Processes

The Pearland site operations do not consist of petroleum refining, natural gas/gasoline processing, or petrochemical processes; therefore, the requirements of these sections do not apply.

§115.412-419 Degreasing and Cleanup Processes

Third Coast does not operate any degreasing units; therefore, these sections do not apply.

§115.420-429 Surface Coating Processes

There are no surface coating operations associated with this application; therefore, these sections do not apply.

§115.430-449 Flexographic and Rotogravure Processes and Offset Lithographic Printing

Third Coast does not operate these types of facilities; therefore, these sections do not apply.

§115.450-459 Control Requirements for Surface Coating Processes

There are no surface coating operations associated with this application; therefore, these sections do not apply.

§115.460-469 Industrial Cleaning Solvents

There are no solvent cleaning operations associated with this application; therefore, these sections do not apply.

§115.470-479 Miscellaneous Industrial Adhesives

Third Coast does not use adhesives or adhesive primers; therefore, these sections do not apply.

§115.510-539 Cutback Asphalt and Pharmaceutical Manufacturing Facilities

Third Coast does not operate these types of facilities; therefore, these sections do not apply.

§115.540-549 Degassing or Cleaning of Stationary, Marine, and Transport Vessels

Third Coast will comply with the requirements of this section, as applicable.

§115.552-619 Petroleum Dry Cleaning Systems and Consumer Products

Third Coast does not operate these types of facilities; therefore, these sections do not apply.

§115.720-789 Highly Reactive Volatile Organic Compounds

The sources authorized by NSR Permit 92403 do not emit any HRVOCs; therefore, these sections do not apply.

§115.901-916 Alternate Means of Control

Third Coast is not requesting an AMOC as part of this permit application; therefore, these sections do not apply.

§115.920-923 Early Reductions

Third Coast is not requesting an extension to comply with any requirement in this chapter; therefore, these sections do not apply.

§115.930-940 Compliance and Control Plan Requirements

A schedule for achieving compliance with the applicable sections of this regulation will be provided upon request by the Executive Director.

§115.950 Emissions Trading

Emission reduction credits and discrete emission reduction credits will not be used to meet the emission control requirements of this chapter.

CHAPTER 116 CONTROL OF AIR POLLUTION BY PERMITS FOR NEW CONSTRUCTION OR MODIFICATION

§116.110 Applicability

(a) This permit amendment application will satisfy all requirements of 30 TAC §116.111.

(b) A portion of this permit application is seeking to modify the emission rates from existing permitted facilities. As such, the proposed modifications to existing permitted facilities will be authorized through the amendment of an existing NSR permit.

(c) This application is subject to the compliance history review requirements under 30 TAC Chapter 60.

(d) The Pearland site is not a major source of HAP. In addition, Third Coast is not claiming any of the restricted permitting options.

(e) Change of ownership rules do not apply to this application.

(f) Third Coast is not required to submit this application under seal of a Texas licensed professional engineer.

Third Coast is the owner and operator of the Pearland site and is responsible for compliance with the requirements in §116.110(g).

§116.111(a)(1) and (2)(A) Protection of Public Health and Welfare and Proximity to Schools

A completed Form PI-1 General Application form; Excel workbook file (version 4.0), has been submitted electronically to TCEQ APIRT via STEERS. This application includes information demonstrating that the emission rates from the affected facilities associated with the proposed modification at the facility comply with the rules and regulations of the TCEQ and the intent of the Texas Clean Air Act, including protection of health and property of the public.

As indicated on Figure 1-1, there are no schools located within 3,000 feet from the facility.

§116.111(a)(2)(B) Measurement of Emissions

Third Coast will have provisions for measuring the emissions of significant air contaminants as determined by the executive director.

§116.111(a)(2)(C) Best Available Control Technology (BACT)

Third Coast utilizes BACT with consideration given to the technical practicability and economic reasonableness of reducing emissions. A BACT analysis is presented in the *Form PI-1 General Application form*; Excel workbook file.

§116.111(a)(2)(D) Federal New Source Performance Standards (NSPS)

The emission sources in this application are not subject to any New Source Performance Standards (NSPS) as specified in 40 CFR Part 60; therefore, this requirement is not applicable.

§116.111(a)(2)(E) National Emission Standards for Hazardous Air Pollutants (NESHAP)

The Pearland site is not a major source of HAPs and the emission sources at the site are not subject to any National Emission Standards for Hazardous Air Pollutants (NESHAP) as specified in 40 CFR Part 61; therefore, this requirement is not applicable.

§116.111(a)(2)(F) NESHAP for Source Categories

The emission sources in this application are not subject to any requirements of 40 CFR Part 63 (MACT), and will not result in the emissions of any pollutants subject to NESHAP standards as promulgated under 40 CFR Part 61. Therefore, this section does not apply.

§116.111(a)(2)(G) Performance Demonstration

Third Coast will operate the facilities as represented in the permit amendment application and will achieve the performance specified in this application. As may be requested by the Executive Director, additional performance data and testing will be provided as appropriate in order to demonstrate further that the proposed facility will achieve the performance specified in the application.

§116.111(a)(2)(H) Nonattainment Review

This project does not trigger nonattainment review, as discussed in Section 1.5.1.

§116.111(a)(2)(I) Prevention of Significant Deterioration (PSD) Review

As shown in Section 1.5.2, PSD permitting requirements do not apply to this project.

§116.111(a)(2)(J) Air Dispersion Modeling

Third Coast is providing computerized air dispersion modeling results with this permit application. Third Coast performed refined air dispersion modeling, which is included in the EMEW in Appendix C and discussed in Section 1.8.

§116.111(a)(2)(K) Hazardous Air Pollutants

This project does not constitute construction or reconstruction of a major source of HAPS; therefore, this section does not apply.

§116.111(a)(2)(L) Mass Cap and Trade Allowances

Third Coast is not currently subject to 30 TAC Chapter 101, Subchapter H, Division 3, relating to the MECT Program. If the site becomes subject to this program and has one or more affected facilities subject to 30 TAC §117.2010 with a collective uncontrolled design capacity to emit 10.0 tons or more per year of NO_x, Third Coast will comply with the requirements of this section as necessary.

§116.112 Distance Limitations

Third Coast is not a lead smelter, concrete crushing facility, or hazardous waste management facility; therefore, these sections do not apply.

§116.114 Application Review Schedule

Third Coast will comply with all conditions of the TCEQ permit review schedule.

§116.115 General and Special Conditions

Third Coast will comply with all conditions and provisions of the TCEQ air permit.

§116.116 Changes to Facilities

The facility will be operated in accordance with the representations made in this application and any ensuing amendments. Changes in construction or operation resulting in changes in the method of controlling emissions, the character of the emissions, or an increase in emissions will be preceded by proper authorization.

§116.117 Documentation and Notification of Changes to Qualified Facilities

This section does not apply to this permit application.

§116.119 De Minimis Facilities or Sources

No de minimis facilities or sources are represented in this permit application.

§116.120 Voiding of Permits

This permit application does not involve voiding of permits.

§116.127 Actual to Projected Actual and Emissions Exclusion Test for Emissions

This section does not apply to this permit application.

§116.128 Amendment Application, Public Notice and Contested Case Hearing Procedures for Certain Electric Generating Facilities

The Pearland site is not an electric generating facility; therefore, this section does not apply.

§116.140-143 Permit Fees

Third Coast will remit the appropriate application fees in accordance with this section.

§116.150 New Major Source or Major Modification in Ozone Nonattainment Area

The proposed project does not constitute a new major source or major modification; therefore, the requirements of this section are not applicable.

§116.151 New Major Source or Major Modification in Nonattainment Area Other Than Ozone

The Pearland site is located in Brazoria County, which is an attainment area for all criteria pollutants other than ozone and therefore is not subject to the requirements of this section.

§116.160-163 Prevention of Significant Deterioration Review

As shown in Section 1.7.2, PSD permitting requirements do not apply to this project.

§116.164 and 169 Green House Gases

Third Coast Pearland facility is not subject to a PSD review for Greenhouse Gases (GHGs). Therefore, the requirements of this section do not apply to this application.

§116.170-176 Emission Reductions: Offsets

Emission offsets are not required for this project.

§116.178 Portable Facilities

There are no portable facilities associated with this project. Therefore, the requirements of this section do not apply.

§116.180-198 Plant-wide Applicability Limits

Third Coast is not requesting plant-wide applicability limits with this application; therefore, these sections do not apply.

Subchapter D Permit Renewals

§116.311(a)(1) Inclusion of Dockside Emissions

This section does not apply to this permit application.

§116.311(a)(2) Compliance with Existing Permit

The Pearland site operates in compliance with the existing Permit No. 92403.

§116.311(a)(3) Compliance with NSPS

No facilities in this permit are subject to any NSPS standard.

§116.311(a)(4) Compliance with NESHAPs

The emission sources in this application are not subject to any NESHAP as specified in 40 CFR Part 61; therefore, this requirement is not applicable.

§116.311(a)(5) Compliance with MACT

The emission sources in this application are not subject to any National Emission Standards for Hazardous Air Pollutants for Source Categories (a.k.a. Maximum

Achievable Control Technology (MACT)) as specified in 40 CFR Part 63; therefore, this requirement is not applicable.

§116.311(a)(6) Compliance with 112(g)

The Section 112(g) program is designed to ensure that emissions of Hazardous Air Pollutants (HAPs) do not increase if a facility that is a major source of HAPs is constructed or reconstructed before EPA issues a MACT or air toxics regulation for that particular source category. The Pearland site is not a major source of HAP emissions, i.e. site-wide emissions are less than ten tpy of any single HAP and less than 25 tpy of total HAPs; therefore, this section is not applicable.

§116.311(b) Additional Requirements

Third Coast will comply with these requirements if the TCEQ determines that they are necessary to avoid a condition of air pollution or to ensure compliance with otherwise applicable requirements or regulations.

§116.312 Public Notification

Third Coast will comply with the public notification and comment procedures in accordance with this section.

§116.313 Renewal Application Fees

Third Coast will remit the appropriate renewal application fees in accordance with this section.

§116.400-406 Hazardous Air Pollutants: Regulations Governing Constructed or Reconstructed Major Sources

Third Coast is not constructing or reconstructing a major source. Therefore, the requirements of this section do not apply.

§116.601-620 Standard Permits

This application is not a request for authorization under a Standard Permit; therefore, these sections do not apply to this permit amendment application.

§116.710-765 Flexible Permits

Third Coast does not operate under a flexible permit and this application is not a request for authorization under a Flexible Permit; therefore, these sections do not apply to this permit application.

§116.770-807 Permits for Grandfathered Facilities

These sections do not apply to this permit application.

§116.810-870 Voluntary Emission Reduction Permit

These sections do not apply to this permit application.

§116.910-931 Electric Generating Facility Permits

The Pearland site is not an electric generating facility; therefore, these sections do not apply.

§116.1010-1070 Multiple Plant Permits

These sections do not apply to this permit application.

§116.1200 Emergency Orders

Third Coast will apply for an emergency order in compliance with these rules if a catastrophic event occurs that necessitates such action.

§116.1400-1428 Permits for Specific Designated Facilities

These sections do not apply to this application.

§116.1500-1540 Best Available Retrofit Technology (BART)

These sections do not apply to this permit application.

CHAPTER 117 CONTROL OF AIR POLLUTION FROM NITROGEN COMPOUNDS

The Pearland site is a minor source for NO_x emissions in the Houston-Galveston-Brazoria (HGB) Ozone Nonattainment Area, and is therefore subject to Chapter 117, Subchapter D. However, the RTO in this application are not the type of equipment subject to 30 TAC Chapter 117, Subchapter D.

CHAPTER 118 CONTROL OF AIR POLLUTION EPISODES

In the event of an air pollution episode, Third Coast will comply with any applicable order issued by the Executive Director.

CHAPTER 122 FEDERAL OPERATING PERMITS

The Pearland site is a minor source of emissions for all pollutants and does not need a federal operating permit. Therefore, the requirements of this section do not apply.

Appendix A
PI-1 General Application

- TCEQ *Form PI-1 General Application* Excel Workbook (Submitted via STEERS)

I. Applicant Information

I acknowledge that I am submitting an authorized TCEQ application workbook and any necessary attachments. Except for inputting the requested data and adjusting row height and column width, I have not changed the TCEQ application workbook in any way, including but not limited to changing formulas, formatting, content, or protections.	I agree

A. Company Information

Company or Legal Name:	Third Coast Packaging, Inc.

Permits are issued to either the facility owner or operator, commonly referred to as the applicant or permit holder. List the legal name of the company, corporation, partnership, or person who is applying for the permit. We will verify the legal name with the Texas Secretary of State at (512) 463-5555 or at:

https://www.sos.state.tx.us

Texas Secretary of State Charter/Registration Number (if given):	

B. Company Official Contact Information: must not be a consultant

Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Edgardo
Last Name:	Cruz
Title:	HSSEQ Director
Mailing Address:	1871 Mykawa Road
Address Line 2:	
City:	Pearland
State:	TX
ZIP Code:	77581
Telephone Number:	346-207-4705
Fax Number:	
Email Address:	ecruz@thirdcoast.com

C. Technical Contact Information: This person must have the authority to make binding agreements and representations on behalf of the applicant and may be a consultant. **Additional technical contact(s) can be provided in a cover letter.**

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Elizabeth
Last Name:	Stanko
Title:	Project Manager
Company or Legal Name:	TRC Environmental Corporation
Mailing Address:	16350 Park Ten Place
Address Line 2:	Suite 101
City:	Houston
State:	TX
ZIP Code:	77084
Telephone Number:	713-244-1039
Fax Number:	
Email Address:	estanko@trccompanies.com

D. Assigned Numbers

The CN and RN below are assigned when a Core Data Form is initially submitted to the Central Registry. The RN is also assigned if the agency has conducted an investigation or if the agency has issued an enforcement action. If these numbers have not yet been assigned, leave these questions blank and include a Core Data Form with your application submittal. See Section VI.B. below for additional information.

Enter the CN. The CN is a unique number given to each business, governmental body, association, individual, or other entity that owns, operates, is responsible for, or is affiliated with a regulated entity.	CN600398150
Enter the RN. The RN is a unique agency assigned number given to each person, organization, place, or thing that is of environmental interest to us and where regulated activities will occur. The RN replaces existing air account numbers. The RN for portable units is assigned to the unit itself, and that same RN should be used when applying for authorization at a different location.	RN102419330

II. Delinquent Fees and Penalties

Does the applicant have unpaid delinquent fees and/or penalties owed to the TCEQ? This form will not be processed until all delinquent fees and/or penalties owed to the TCEQ or the Office of the Attorney General on behalf of the TCEQ are paid in accordance with the Delinquent Fee and Penalty Protocol. For more information regarding Delinquent Fees and Penalties, go to the TCEQ Web site at: https://www.tceq.texas.gov/agency/financial/fees/delin	No

III. Permit Information

A. Permit and Action Type (multiple may be selected, leave no blanks)

Additional information regarding the different NSR authorizations can be found at:
https://www.tceq.texas.gov/permitting/air/guidance/authorize.html

Select from the drop-down the type of action being requested for each permit type. **If that permit type does not apply, you MUST select "Not applicable".**

Provide all assigned permit numbers relevant for the project. Leave blank if the permit number has not yet been assigned.

Permit Type	Action Type Requested (do not leave blank)	Permit Number (if assigned)
Minor NSR (can be a Title V major source): *Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Relocation/Alteration, Change of Location, Alteration, Extension to Start of Construction*	Renewal/Amendment	92403
Special Permit: *Not applicable, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction*	Not applicable	
De Minimis: *Not applicable, Initial*	Not applicable	
Flexible: *Not applicable, Initial, Amendment, Renewal, Renewal Certification, Renewal/Amendment, Alteration, Extension to Start of Construction*	Not applicable	
PSD: *Not applicable, Initial, Major Modification*	Not applicable	
Nonattainment: *Not applicable, Initial, Major Modification*	Not applicable	

HAP Major Source [FCAA § 112(g)]: *Not applicable, Initial, Major Modification*	Not applicable	
PAL: *Not applicable, Initial, Amendment, Renewal, Renewal/Amendment, Alteration*	Not applicable	
GHG PSD: *Not applicable, Initial, Major Modification, Voluntary Update*	Not applicable	

B. MSS Activities

How are/will MSS activities for sources associated with this project be authorized?	Combination (list below)
List the permit number, registration number, and/or PBR number.	30 TAC Chapter 106 PBR, or the activity is listed on the de minimis list under 30 TAC §116.119(a)(1)

C. Consolidating NSR Permits

Will this permit be consolidated into another NSR permit with this action?	No
Will NSR permits be consolidated into this permit with this action?	No

D. Incorporation of Standard Permits, Standard Exemptions, and/or Permits By Rule (PBR)

To ensure protectiveness, previously issued authorizations (standard permits, standard exemptions, or PBRs) including those for MSS, are incorporated into a permit either by consolidation or by reference. At the time of renewal and/or amendment, consolidation (in some cases) may be voluntary and referencing is mandatory. More guidance regarding incorporation can be found in 30 TAC § 116.116(d)(2), 30 TAC § 116.615(3) and in this memo:

https://www.tceq.texas.gov/assets/public/permitting/air/memos/pbr_spc06.pdf

Are there any standard permits, standard exemptions, or PBRs to be incorporated by reference?	No

Are there any PBR, standard exemptions, or standard permits associated to be incorporated by consolidation? **Note:** Emission calculations, a BACT analysis, and an impacts analysis must be attached to this application at the time of submittal for any authorization to be incorporated by consolidation.	Yes
If yes, list any PBR, standard exemptions, or standard permits that need to be consolidated:	159633
If yes, are emission calculations, BACT analysis, and an impacts analysis included for each authorization to be consolidated? **If any required information is not provided, the authorization will be incorporated by reference.**	Yes

E. Associated Federal Operating Permits

Is this facility located at a site required to obtain a **site operating permit (SOP)** or **general operating permit (GOP)?**	No

IV. Facility Location and General Information

A. Location

County: Enter the county where the facility is physically located.	Brazoria
TCEQ Region	Region 12
County attainment status as of Sept. 23, 2019	Serious Ozone nonattainment
Street Address:	1871 Mykawa Road
City: If the address is not located in a city, then enter the city or town closest to the facility, even if it is not in the same county as the facility.	Pearland
ZIP Code: Include the ZIP Code of the physical facility site, not the ZIP Code of the applicant's mailing address.	77581
Site Location Description: If there is no street address, provide written driving directions to the site. Identify the location by distance and direction from well-known landmarks such as major highway intersections.	

Use USGS maps, county maps prepared by the Texas Department of Transportation, or an online software application such as Google Earth to find the latitude and longitude.

Latitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Latitude is the angular distance of a location north of the equator and will always be between 25 and 37 degrees north (N) in Texas.	29:34:26

Longitude (in degrees, minutes, and nearest second (DDD:MM:SS)) for the street address or the destination point of the driving directions. Longitude is the angular distance of a location west of the prime meridian and will always be between 93 and 107 degrees west (W) in Texas.	95:17:37
Is this a project for a lead smelter, concrete crushing facility, and/or a hazardous waste management facility?	No

B. General Information

Site Name:	Third Coast Pearland Facility
Area Name: Must indicate the general type of operation, process, equipment or facility. Include numerical designations, if appropriate. Examples are Sulfuric Acid Plant and No. 5 Steam Boiler. Vague names such as Chemical Plant are not acceptable.	Packaging Facility
Are there any schools located within 3,000 feet of the site boundary?	No

C. Portable Facility

Permanent or portable facility?	Permanent

D. Industry Type

Principal Company Product/Business:	Packaging Products
A list of SIC codes can be found at: https://www.naics.com/sic-codes-industry-drilldown/	
Principal SIC code:	4226
NAICS codes and conversions between NAICS and SIC Codes are available at: https://www.census.gov/eos/www/naics/	
Principal NAICS code:	493110

E. State Senator and Representative for this site

This information can be found at (note, the website is not compatible to Internet Explorer): https://wrm.capitol.texas.gov/	
State Senator:	Larry Taylor
District:	11
State Representative:	Ed Thompson
District:	29

V. Project Information

A. Description

Provide a brief description of the project that is requested. (Limited to 500 characters).	Renew NSR Permit 92403 and concurrent amendment to consolidate by incorporation PBR Registration No. 159633 and update chemical attachment lists and associated emission rate calculations. No new sources or construction is being authorized with this project and there are no new chemical constituents being authorized.

B. Project Timing

Authorization must be obtained for many projects before beginning construction. Construction is broadly interpreted as anything other than site clearance or site preparation. Enter the date as "Month Date, Year" (e.g. July 4, 1776).

Projected Start of Construction:	NA
Projected Start of Operation:	NA

C. Enforcement Projects

Is this application in response to, or related to, an agency investigation, notice of violation, or enforcement action?	No

D. Operating Schedule

Will sources in this project be authorized to operate 8760 hours per year?	Yes

VI. Application Materials

All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. (30 TAC § 116.116)

A. Confidential Application Materials

Is confidential information submitted with this application?	No

B. Is the Core Data Form (Form 10400) attached? No

https://www.tceq.texas.gov/assets/public/permitting/centralregistry/10400.docx

C. Is a current area map attached?	Yes
Is the area map a current map with a true north arrow, an accurate scale, the entire plant property, the location of the property relative to prominent geographical features including, but not limited to, highways, roads, streams, and significant landmarks such as buildings, residences, schools, parks, hospitals, day care centers, and churches?	Yes
Does the map show a 3,000-foot radius from the property boundary?	Yes
D. Is a plot plan attached?	Yes
Does your plot plan clearly show a north arrow, an accurate scale, all property lines, all emission points, buildings, tanks, process vessels, other process equipment, and two bench mark locations?	Yes
Does your plot plan identify all emission points on the affected property, including all emission points authorized by other air authorizations, construction permits, PBRs, special permits, and standard permits?	Yes
Did you include a table of emission points indicating the authorization type and authorization identifier, such as a permit number, registration number, or rule citation under which each emission point is currently authorized?	Yes

E. Is a process flow diagram attached?	Yes
Is the process flow diagram sufficiently descriptive so the permit reviewer can determine the raw materials to be used in the process; all major processing steps and major equipment items; individual emission points associated with each process step; the location and identification of all emission abatement devices; and the location and identification of all waste streams (including wastewater streams that may have associated air emissions)?	Yes
F. Is a process description attached?	Yes
Does the process description emphasize where the emissions are generated, why the emissions must be generated, what air pollution controls are used (including process design features that minimize emissions), and where the emissions enter the atmosphere?	Yes
Does the process description also explain how the facility or facilities will be operating when the maximum possible emissions are produced?	Yes
G. Are detailed calculations attached? Calculations must be provided for each source with new or changing emission rates. For example, a new source, changing emission factors, decreasing emissions, consolidated sources, etc. You do not need to submit calculations for sources which are not changing emission rates with this project. Please note: the preferred format is an electronic workbook (such as Excel) with all formulas viewable for review. It can be emailed with the submittal of this application workbook.	Yes
Are emission rates and associated calculations for planned MSS facilities and related activities attached?	N/A
H. Is a material balance (Table 2, Form 10155) attached?	N/A
I. Is a list of MSS activities attached?	N/A
J. Is a discussion of state regulatory requirements attached, addressing 30 TAC Chapters 101, 111, 112, 113, 115, and 117?	Yes
For all applicable chapters, does the discussion include how the facility will comply with the requirements of the chapter?	Yes
For all not applicable chapters, does the discussion include why the chapter is not applicable?	Yes
K. Are all other required tables, calculations, and descriptions attached?	Yes

VII. Signature

The owner or operator of the facility must apply for authority to construct. The appropriate company official (owner, plant manager, president, vice president, or environmental director) must sign all copies of the application. The applicant's consultant cannot sign the application. **Important Note: Signatures must be original in ink, not reproduced by photocopy, fax, or other means, and must be received before any permit is issued.**

The signature below confirms that I have knowledge of the facts included in this application and that these facts are true and correct to the best of my knowledge and belief. I further state that to the best of my knowledge and belief, the project for which application is made will not in any way violate any provision of the Texas Water Code (TWC), Chapter 7; the Texas Health and Safety Code, Chapter 382; the Texas Clean Air Act (TCAA); the air quality rules of the Texas Commission on Environmental Quality; or any local governmental ordinance or resolution enacted pursuant to the TCAA. I further state that I understand my signature indicates that this application meets all applicable nonattainment, prevention of significant deterioration, or major source of hazardous air pollutant permitting requirements. The signature further signifies awareness that intentionally or knowingly making or causing to be made false material statements or representations in the application is a criminal offense subject to criminal penalties.

Name:	Mr. Edgardo Cruz
Signature:	*Signed electronially in STEERS*
	Original signature is required.
Date:	October 14, 2020

I. Type of Permit Renewal and Associated Actions

A. Current Operations

Do all dockside vessel emissions associated with the facility comply with all rules and regulations of the commission and with the intent of the TCAA, including protection of the health and property of the public and minimization of emissions to the extent possible, consistent with good air pollution practices? (30 TAC § 116.311(a)(1))	N/A
Is the facility being operated in accordance with all requirements and conditions of the existing permit, including representations in the application for permit to construct and subsequent amendments, and any previously granted renewal, unless otherwise authorized for a qualified facility?	Yes
Are there any permit actions pending before the TCEQ?	No
Have any qualified facility changes under 30 TAC § 116.116(e) occurred since originally issued or last renewed?	No
Have emission factors changed since the last permitting action?	No

B. Changes Made Since Last Amendment or Renewal

Have any of the following changes been made to or proposed for the facilities covered by this permit since it was last amended or renewed and are not currently authorized by a PBR, standard permit, or other authorization? *Select "Yes" or "No" to answer each question.*

Construction of a new emission source?	No
The emission of new chemical species or a change in character of emissions?	No
An increase in emission rates on a short term or annual basis? (This includes increases of a criteria pollutant as well as increases of a chemical species.)	Yes
A change in the method of emission control if the emission control is a source itself, such as a thermal oxidizer or flare?	No
Are new pollutants being added in the renewal process, not currently listed in the permit?	No

If "yes" to any question in Section B above is selected, a concurrent permit amendment is required before the permit can be renewed.

II. Federal Regulatory Questions

Indicate if any of the following requirements apply to the proposed facility. Note that some federal regulations apply to minor sources. Enter all applicable Subparts.

A. Title 40 CFR Part 60	
Do NSPS subpart(s) apply to a facility in this application?	No
B. Title 40 CFR Part 61	
Do NESHAP subpart(s) apply to a facility in this application?	No
C. Title 40 CFR Part 63	
Do MACT subpart(s) apply to a facility in this application?	No

I. Additional Questions for Specific NSR Minor Permit Actions

E. Concrete Batch Plants

Is this a project for a concrete batch plant?	No

IX. Emissions Review	
A. Impacts Analysis	
Any change that results in an increase in off-property concentrations of air contaminants requires an air quality impacts demonstration. Information regarding the air quality impacts demonstration must be provided with the application and show compliance with all state and federal requirements. Detailed requirements for the information necessary to make the demonstration are listed on the Impacts sheet of this workbook.	
Does this project require an impacts analysis?	Yes
B. Disaster Review	

If the proposed facility will handle sufficient quantities of certain chemicals which, if released accidentally, would cause off-property impacts that could be immediately dangerous to life and health, a disaster review analysis may be required as part of the application. Contact the appropriate NSR permitting section for assistance at (512) 239-1250. Additional Guidance can be found at:
https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/disrev-factsheet.pdf

Does this application involve any air contaminants for which a disaster review is required?	No

C. Air Pollutant Watch List

Certain areas of the state have concentrations of specific pollutants that are of concern. The TCEQ has designated these portions of the state as watch list areas. Location of a facility in a watch list area could result in additional restrictions on emissions of the affected air pollutant(s) or additional permit requirements. The location of the areas and pollutants of interest can be found at:
https://www.tceq.texas.gov/toxicology/apwl/apwl.html

Is the proposed facility located in a watch list area?	No

D. Mass Emissions Cap and Trade

Is this facility located at a site within the Houston/Galveston nonattainment area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties)?	Yes
Is Mass Emissions Cap and Trade applicable to the new or modified facilities?	No

Texas Commission on Environmental Quality
Form PI-1 General Application
Unit Types - Emission Rates

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

Permit primary industry (must be selected for workbook to function)	Chemical / Energy

Action Requested (only 1 action per FIN)	Include these emissions in annual (tpy) summary?	Facility ID Number (FIN)	Emission Point Number (EPN)	Source Name	Pollutant	Current Short-Term (lb/hr)	Current Long-Term (tpy)	Consolidated Current Short-Term (lb/hr)	Consolidated Current Long-Term (tpy)	Proposed Short-Term (lb/hr)	Proposed Long-Term (tpy)	Short-Term Difference (lb/hr)	Long-Term Difference (tpy)	Unit Type (Used for reviewing BACT and Monitoring Requirements)	Unit Type Notes (only if "other" unit type in Column O)
New/Modified	Yes	FILLER	RTO-SCRUB	Emissions from automated drum and tote filling	VOC	1.71	1.38	2.886047639	1.420716515	5.122143323	2.705308719	*0.5261*	**-0.0954**	Loading: Drum or Tote	
					Exempt Solvents	0.42	0.45	0.31	0.35	1.25	2.32	*0.52*	*1.52*		
					HCl	0.11	0.04	0	0	0.32	0.49	*0.21*	*0.45*		
New/Modified	Yes	OXIDIZER	RTO-SCRUB	Thermal Oxidizer emissions from combustion	NOx	0.37	1.01	0.446861078	1.697039505	0.538969332	1.983988615	**-0.2778**	**-0.723**	Control: Oxidizer: Regenerative Thermal	
					CO	0.27	0.83	0.375363306	1.425513185	0.452734239	1.666550437	**-0.1926**	**-0.5889**		
					SO2	0.01	0.01	1.002986594	3.30847143	0.359892429	0.670106956	**-0.653**	**-2.6483**		
					VOC	0.02	0.06	0.02	0.07	0.016176471	0.070852941	**-0.0238**	**-0.0591**		
					PM	0.03	0.08	0.033961442	0.128975002	0.04	0.15	**-0.0239**	**-0.0589**		
					PM10	0.03	0.08	0.033961442	0.128975002	0.04	0.15	**-0.0239**	**-0.0589**		
					PM2.5	0.03	0.08	0.033961442	0.128975002	0.04	0.15	**-0.0239**	**-0.0589**		
New/Modified	Yes	FUG	FUG	Equipment fugitives	VOC	0.01	0.02	0.003377	0.01479126	0.01	0.03	**-0.0033**	**-0.0047**	Fugitives: Piping and Equipment Leak	
												0	0		

Texas Commission on Environmental Quality
Form PI-1 General Application
Stack Parameters

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

Emission Point Discharge Parameters												
EPN	Included in EMEW?	UTM Coordinates Zone	East (Meters)	North (Meters)	Building Height (ft)	Height Above Ground (ft)	Stack Exit Diameter (ft)	Velocity (FPS)	Temperature (°F)	Fugitives - Length (ft)	Fugitives - Width (ft)	Fugitives - Axis Degrees
RTO-SCRUB	Yes											
FUG	Yes											

I. Public Notice Applicability

A. Application Type

Is this an application for a renewal?	Yes
Is this an application for a minor permit amendment?	Yes
Is there any change in character of emissions in this application (a new criteria pollutant or a new VOC or PM species)?	No
Is there a new air contaminant in this application?	No

B. Project Increases and Public Notice Thresholds (for Initial and Amendment Projects)

For public notice applicability, the agency does not include consolidation or incorporation of any previously authorized facility or activity (PBR, standard permits, etc.), changes to permitted allowable emission rates when exclusively due to changes to standardized emission factors, or reductions in emissions which are not enforceable through the amended permit. Thus, the total emissions increase would be the sum of emissions increases under the amended permit and the emissions decreases under the amended permit for each air contaminant.

The table below will generate emission increases based on the values represented on the "Unit Types - Emission Rates" sheet. Use the "yes" and "no" options in column B of the "Unit Types - Emission Rates" worksheet to indicate if a unit's proposed change of emissions should be included in these totals.

Notes:

1. Emissions of PM, PM10, and/or PM2.5 may have been previously quantified and authorized as PM, PM10,and/or PM2.5. These emissions will be speciated based on current guidance and policy to demonstrate compliance with current standards and public notice requirements may change during the permit review.

2. All renewals require public notice.

This row is optional. If you do not think the table below accurately represents public notice applicability increases for your project, provide discussion here (1000 characters).	
Do the facilities handle, load, unload, dry, manufacture, or process grain, seed, legumes, or vegetable fibers (agricultural facilities)?	No

Pollutant	Current Long-Term (tpy)	Consolidated Emissions (tpy)	Proposed Long-Term (tpy)	Project Change in Allowable (tpy)	PN Threshold	Notice required?
VOC	1.46	1.51	2.81	-0.16	5	No
PM	0.08	0.13	0.15	-0.06	5	No
PM_{10}	0.08	0.13	0.15	-0.06	5	No
$PM_{2.5}$	0.08	0.13	0.15	-0.06	5	No
NO_x	1.01	1.70	1.98	-0.72	5	No
CO	0.83	1.43	1.67	-0.59	50	No
SO_2	0.01	3.31	0.67	-2.65	10	No
Pb	0.00	0.00	0.00	0.00	0.6	No
Exempt Solvents	0.45	0.35	2.32	1.52	5	No
HCl	0.04	0	0.49	0.45	5	No

* Notice is required for PM, PM10, and PM2.5 if one of these pollutants is above the threshold.

** Notice of a GHG action is determined by action type. Initial and major modification always require notice. Voluntary updates require a consolidated notice if there is a change to BACT. Project emission increases of CO2e (CO2 equivalent) are not relevant for determining public notice of GHG permit actions.

C. Is public notice required for this project as represented in this workbook? If no, proceed to Section III Small Business Classification. Note: public notice applicability for this project may change throughout the technical review.	Yes
D. Are any HAPs to be authorized/re-authorized with this project? The category "HAPs" must be specifically listed in the public notice if the project authorizes (reauthorizes for renewals) any HAP pollutants.	Yes

II. Public Notice Information

Complete this section if public notice is required (determined in the above section) or if you are not sure if public notice is required.

A. Contact Information

Enter the contact information for the **person responsible for publishing.** This is a designated representative who is responsible for ensuring public notice is properly published in the appropriate newspaper and signs are posted at the facility site. This person will be contacted directly when the TCEQ is ready to authorize public notice for the application.

Prefix (Mr., Ms., Dr., etc.):	Mr.
First Name:	Edgardo
Last Name:	Cruz
Title:	HSSEQ Director
Company Name:	Third Coast Packaging, Inc.
Mailing Address:	1871 Mykawa Rd.
Address Line 2:	
City:	Pearland
State:	Texas
ZIP Code:	77581
Telephone Number:	346-207-4705
Fax Number:	
Email Address:	ecruz@thirdcoast.com

Enter the contact information for the **Technical Contact.** This is the designated representative who will be listed in the public notice as a contact for additional information.

Prefix (Mr., Ms., Dr., etc.):	Ms.
First Name:	Elizabeth
Last Name:	Stanko
Title:	Project Manager
Company Name:	TRC Environmental Corporation
Mailing Address:	16350 Park Ten Place
Address Line 2:	Suite 101
City:	Houston
State:	TX
ZIP Code:	77084
Telephone Number:	713-244-1039
Fax Number:	
Email Address:	estanko@trccompanies.com

B. Public place

Place a copy of the full application (including all of this workbook and all attachments) at a public place in the county where the facilities are or will be located. You must state where in the county the application will be available for public review and comment. The location must be a public place and described in the notice. A public place is a location which is owned and operated by public funds (such as libraries, county courthouses, city halls) and cannot be a commercial enterprise. You are required to pre-arrange this availability with the public place indicated below. The application must remain available from the first day of publication through the designated comment period.

If this is an application for a PSD, nonattainment, or FCAA §112(g) permit, the public place must have internet access available for the public as required in 30 TAC § 39.411(f)(3).

If the application is submitted to the agency with information marked as Confidential, you are required to indicate which specific portions of the application are not being made available to the public. These portions of the application must be accompanied with the following statement: ***Any request for portions of this application that are marked as confidential must be submitted in writing, pursuant to the Public Information Act, to the TCEQ Public Information Coordinator, MC 197, P.O. Box 13087, Austin, Texas 78711-3087.***

Name of Public Place:	Pearland Westside Library – Brazoria County Library System
Physical Address:	2803 Business Center Drive, Suite 101
Address Line 2:	And available online via internet direct weblink: https://thirdcoastterminals.com/Permit_92403_Public_Notice.pdf
City:	Pearland
ZIP Code:	77584
County:	Brazoria
Has the public place granted authorization to place the application for public viewing and copying?	Yes

C. Alternate Language Publication

In some cases, public notice in an alternate language is required. If an elementary or middle school nearest to the facility is in a school district required by the Texas Education Code to have a bilingual program, a bilingual notice will be required. If there is no bilingual program required in the school nearest the facility, but children who would normally attend those schools are eligible to attend bilingual programs elsewhere in the school district, the bilingual notice will also be required. If it is determined that alternate language notice is required, you are responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

Is a bilingual program required by the Texas Education Code in the School District?	Yes
Are the children who attend either the elementary school or the middle school closest to your facility eligible to be enrolled in a bilingual program provided by the district?	Yes
If yes to either question above, list which language(s) are required by the bilingual program?	Spanish

III. Small Business Classification	
Complete this section to determine small business classification. If a small business requests a permit, agency rules (30 TAC § 39.603(f)(1)(A)) allow for alternative public notification requirements if all of the following criteria are met. If these requirements are met, public notice does not have to include publication of the prominent (12 square inch) newspaper notice.	
Does the company (including parent companies and subsidiary companies) have fewer than 100 employees or less than $6 million in annual gross receipts?	No
Small business classification:	**No**

Texas Commission on Environmental Quality
Form PI-1 General Application
Federal Applicability

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

I. County Classification	
Does the project require retrospective review?	No
County (completed for you from your response on the General sheet)	Brazoria
This project will be located in an area that is in attainment for ozone as of Sept. 23, 2019. Select from the drop-down list to the right if you would like the project to be reviewed under a different classification.	Ozone - Serious
Determination:	**This project will be located in a county with a Serious Ozone nonattainment classification, and the project will be reviewed under a Serious Ozone nonattainment classification. Complete the nonattainment section below and provide an analysis with the application.**

II. PSD and GHG PSD Applicability Summary			
Is netting required for the PSD analysis for this project?			**No**
Pollutant	**Project Increase**	**Threshold**	**PSD Review Required?**
CO	1.67	100	No
NO_x	1.98	40	No
PM	0.15	25	No
PM_{10}	0.15	15	No
$PM_{2.5}$	0.15	10	No
SO_2	0.67	40	No
Pb	0	0.06	No
H_2S	0	10	No
TRS	0	10	No
Reduced sulfur compounds (including H_2S)	0	10	No
H_2SO_4	0	7	No
Fluoride (excluding HF)	0	3	No
CO2e	0	75000	No

III. Nonattainment Applicability Summary			
Is netting required for the nonattainment analysis for this project?			**No**
Pollutant	**Project Increase**	**Threshold**	**NA Review Required?**
Ozone (as VOC)	2.81	50	No
Ozone (as NO_x)	1.98	50	No

IV. Offset Summary (for Nonattainment Permits)			
Pollutant	**Offset Ratio**	**Offset Quantity Required (tpy)**	**Where is the offset coming from?**

Texas Commission on Environmental Quality
Form PI-1 General Application
Fees

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

I. General Information - Non-Renewal	
Is this project for new facilities controlled and operated directly by the federal government? (30 TAC § 116.141(b)(1) and 30 TAC § 116.163(a))	No
A fee of $75,000 shall be required if no estimate of capital project cost is included with the permit application. (30 TAC § 116.141(d)) Select "yes" here to use this option. Then skip sections II and III.	No
Select Application Type	Minor Application

II. Direct Costs - Non-Renewal	
Type of Cost	**Amount**
Process and control equipment not previously owned by the applicant and not currently authorized under this chapter.	$0.00
Auxiliary equipment, including exhaust hoods, ducting, fans, pumps, piping, conveyors, stacks, storage tanks, waste disposal facilities, and air pollution control equipment specifically needed to meet permit and regulation requirements.	$0.00
Freight charges.	$0.00
Site preparation, including demolition, construction of fences, outdoor lighting, road, and parking areas.	$0.00
Installation, including foundations, erection of supporting structures, enclosures or weather protection, insulation and painting, utilities and connections, process integration, and process control equipment.	$0.00
Auxiliary buildings, including materials storage, employee facilities, and changes to existing structures.	$0.00
Ambient air monitoring network.	$0.00
Sub-Total:	$0.00

III. Indirect Costs - Non-Renewal	
Type of Cost	**Amount**
Final engineering design and supervision, and administrative overhead.	$0.00
Construction expense, including construction liaison, securing local building permits, insurance, temporary construction facilities, and construction clean-up.	$0.00
Contractor's fee and overhead.	$0.00
Sub-Total:	$0.00

IV. Calculations - Non-Renewal
For GHG permits: A single PSD fee (calculated on the capital cost of the project per 30 TAC § 116.163) will be required for all of the associated permitting actions for a GHG PSD project. Other NSR permit fees related to the project that have already been remitted to the TCEQ can be subtracted when determining the appropriate fee to submit with the GHG PSD application. Identify these other fees in the GHG PSD permit application.

In signing the "General" sheet with this fee worksheet attached, I certify that the total estimated capital cost of the project as defined in 30 TAC §116.141 is equal to or less than the above figure. I further state that I have read and understand Texas Water Code § 7.179, which defines Criminal Offenses for certain violations, including intentionally or knowingly making, or causing to be made, false material statements or representations.

Estimated Capital Cost	Minor Application Fee	
Less than $300,000	$900 (minimum fee)	
$300,000 - $7,500,000	N/A	
$300,000 - $25,000,000	0.30% of capital cost	
Greater than $7,500,000	N/A	
Greater than $25,000,000	$75,000 (maximum fee)	

Your estimated capital cost:	**$0.00**	Minimum fee applies.
Permit Application Fee:		**$900.00**

V. Renewal Fee

The fee for renewal is based on the total annual allowable emissions from the permitted facility to be renewed. If this project includes an amendment, the amendment permit fee will be calculated separately.

Enter the total allowable emissions (tons per year). The total emissions must include those represented in any PBR or standard permits to be incorporated by consolidation into this permit.	10.1
Permit fee due	**$ 778.50**

VI. Total Fees

Note: fees can be paid together with one payment or as two separate payments.

Non-Renewal Fee	$900.00
Renewal Fee	$ 778.50
Total	$1,678.50

VII. Payment Information

A. Payment One (required)		
Was the fee paid online?		Yes
Enter the fee amount:		$ 900.00
Enter the check, money order, ePay Voucher, or other transaction number:	ePay Voucher No.	
Enter the Company name as it appears on the check:	n/a	
B. Payment Two (if paying renewal and non-renewal fees separately)		
Was the fee paid online?		Yes
Enter the fee amount:		$ 778.50
Enter the check, money order, ePay Voucher, or other transaction number:	ePay Voucher No.	
Enter the Company name as it appears on the check:	n/a	
C. Total Paid		**$1,678.50**

VIII. Professional Engineer Seal Requirement	
Is the estimated capital cost of the project above $2 million?	No
Is the application required to be submitted under the seal of a Texas licensed P.E.? Note: an electronic PE seal is acceptable.	No

Texas Commission on Environmental Quality
Form PI-1 General Application
Impacts

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

Pollutant	Does this pollutant require PSD review?	How will you demonstrate that this project meets all applicable requirements?	Notes	Additional Notes (optional)
VOC	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
Exempt Solvents	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
HCl	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
NOx	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
CO	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
SO2	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
PM	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
PM10	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.
PM2.5	No	Modeling: screen or refined	Attach a completed "Electronic Modeling Evaluation Workbook" (EMEW).	An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations is included with the modeling files, which includes the emission rates, UIM calculations, and MERA summary tables. Electronic EMEW for unit modeling and refined modeling included with STEERS submittal.

Texas Commission on Environmental Quality
Form PI-1 General Application
BACT

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
FILLER	Loading: Drum or Tote	VOC	Specify vapor pressure. 1. VP<0.5 psia: submerged filling (lance fill) 2. Vp > 0.5 psi: submerged loading of drums shall be performed within a total enclosure or within a partial enclosure designed and operated with a capture velocity of at least 200 fpm (if outside, 300 fpm to 500 fpm) at the drum vent. The enclosure shall be designed and operated consistent with the specifications in Industrial Ventilation: A Manual of Recommended Practice.	Yes	VOC compounds with a TVP of 0.5 psia or greater are loaded within a permanent total enclosure (PTE) and vapors routed to a Regenerative Thermal Oxidizer (RTO) and/or a two-stage scrubber as detailed in Attachments II, III, and IV. Compounds on Attachment I or non-chlorinated organic compounds with a TVP < 0.5 psia may be vented uncontrolled directly to the RTO stack. The RTO has a VOC DRE of at least 99% (hourly average) or maintains the VOC concentration in the exhaust gas less than 10 ppmv.
		Exempt Solvents	Specify vapor pressure. 1. VP<0.5 psia: submerged filling (lance fill) 2. Vp > 0.5 psi: submerged loading of drums shall be performed within a total enclosure or within a partial enclosure designed and operated with a capture velocity of at least 200 fpm (if outside, 300 fpm to 500 fpm) at the drum vent. The enclosure shall be designed and operated consistent with the specifications in Industrial Ventilation: A Manual of Recommended Practice.	Yes	ES compounds with a TVP of 0.5 psia or greater are loaded within a PTE and vapors are routed to a Regenerative Thermal Oxidizer (RTO) and/or a two-stage scrubber as applicable, as detailed in Attachments II, III, and IV. Compounds on Attachment I or non-chlorinated organic compounds with a TVP < 0.5 psia may be vented uncontrolled directly to the RTO stack. The RTO has a ES DRE of at least 99% (hourly average) or maintains the ES concentration in the exhaust gas less than 10 ppmv.
		HCl	See Additional Notes:	Yes	HCl loading occurs within a PTE and vapors are routed to a two stage scrubber. Chlorinated inorganic compounds are vented to the two-stage quench scrubber and are allowed to bypass the RTO. The scrubber operates with a 99 percent removal efficiency (hourly average) or maintains the contaminant concentration in the exhaust gas less than 10 ppmv.
		MSS	Same as normal operation BACT requirements.		
OXIDIZER	Control: Oxidizer: Regenerative Thermal	NOx	See Additional Notes:	Yes	There are no current BACT requirements for NOx emissions from a RTO control device. However, Third Coast will maintain good combustion practices using pipeline-quality natural gas. NOx emissions are based AP-42 Chapter 1.4 values.
		CO	See Additional Notes:	Yes	There are no current BACT requirements for CO emissions from a RTO control device. However, Third Coast will maintain good combustion practices using pipeline-quality natural gas. CO emissions are based AP-42 Chapter 1.4 values.
		SO2	See Additional Notes:	Yes	There are no current BACT requirements for SO2 emissions from a RTO control device. However, Third Coast will maintain good combustion practices using pipeline-quality natural gas. SO2 emissions from natural gas combustion are based AP-42 Chapter 1.4 values. SO2 emissions from waste gas is calculated stoichiometrically based on sulfur-containing species.
		VOC	99% destruction or 10 ppmv outlet concentration at 3% oxygen on exhaust VOC. Monitor bed temperature. Perform initial test.	Yes	The RTO achieves a VOC and ES destruction efficiency of at least 99% on an hourly average or maintains the VOC/ES concentration in the exhaust gas less than 10 ppmv.
		PM	The emission reduction techniques for PM10 and PM2.5 will follow the technique for PM. See Additional Notes:	Yes	There are no current BACT requirements for PM emissions from a RTO control device. However, Third Coast will maintain good combustion practices using pipeline-quality natural gas. PM emissions are based AP-42 Chapter 1.4 values.

FINs	Unit Type	Pollutant	Current Tier I BACT	Confirm	Additional Notes
		MSS	Same as normal operation BACT requirements.		
FUG	Fugitives: Piping and Equipment Leak	VOC	Specify which is applicable: 1. Uncontrolled VOC emissions < 10 tpy: none 2. 10 tpy < uncontrolled VOC emissions < 25 tpy: 28M leak detection and repair program. 75% credit for 28M. 3. Uncontrolled VOC emissions > 25 tpy: 28VHP leak detection and repair program. 97% credit for valves, 85% for pumps and compressors. 4. VOC vp < 0.002 psia: no inspection required, no fugitive emissions expected.		Uncontrolled VOC emissions are less than 10 tons per year (tpy). Third Coast has implemented Audio/Visual/Olfactory (AVO) LDAR monitoring program at the site for the equipment associated with the drumming and tote filling operations.
		MSS	Same as normal operation BACT requirements.		

FIN	Unit Type	Pollutant	Minimum Monitoring Requirements	Confirm	Additional Notes for Monitoring
FILLER	Loading: Drum or Tote	VOC	Hourly volume filled for each product.	Yes	Operational records are maintained as necessary to calculate emissions associated with liquid loading (packaging) activities. Data recorded includes date, hours of operation, chemical product, and control device utilized.
		Exempt Solvents	See Additional Notes:	Yes	Operational records are maintained as necessary to calculate emissions associated with liquid loading (packaging) activities. Data recorded includes date, hours of operation, chemical product, and control device utilized.
		HCl	See Additional Notes:	Yes	Operational records are maintained as necessary to calculate emissions associated with liquid loading (packaging) activities. Data recorded includes date, hours of operation, chemical product, and control device utilized.
OXIDIZER	Control: Oxidizer: Regenerative Thermal	NOx	Waste gas flow monitor or operation record that provides flow by design.	Yes	The RTO exhaust temperature is continuously monitored and recorded when waste gas is directed to the oxidizer. The scrubber system minimum liquid flow rate is monitored using a flow indicator, and circulation rate is monitored and recorded at least once an hour. The scrubbing solution pH is monitored and the pH is continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation.
		CO	Waste gas flow monitor or operation record that provides flow by design.	Yes	The RTO exhaust temperature is continuously monitored and recorded when waste gas is directed to the oxidizer. The scrubber system minimum liquid flow rate is monitored using a flow indicator, and circulation rate is monitored and recorded at least once an hour. The scrubbing solution pH is monitored and the pH is continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation.
		SO2	Waste gas flow monitor or operation record that provides flow by design.	Yes	The RTO exhaust temperature is continuously monitored and recorded when waste gas is directed to the oxidizer. The scrubber system minimum liquid flow rate is monitored using a flow indicator, and circulation rate is monitored and recorded at least once an hour. The scrubbing solution pH is monitored and the pH is continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation.
		VOC	Continuous Exhaust Temperature and Oxygen concentration monitoring and recorded as a six minute average. Waste gas flow monitor or operation record that provides flow by design.	Yes	The RTO exhaust temperature is continuously monitored and recorded when waste gas is directed to the oxidizer. The scrubber system minimum liquid flow rate is monitored using a flow indicator, and circulation rate is monitored and recorded at least once an hour. The scrubbing solution pH is monitored and the pH is continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation.
		PM	The emission monitoring techniques for PM10 and PM2.5 will follow the technique for PM. Visible emissions check quarterly	Yes	The RTO exhaust temperature is continuously monitored and recorded when waste gas is directed to the oxidizer. The scrubber system minimum liquid flow rate is monitored using a flow indicator, and circulation rate is monitored and recorded at least once an hour. The scrubbing solution pH is monitored and the pH is continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation.
FUG	Fugitives: Piping and Equipment Leak	VOC	Use EPA Method 21 to monitor for leaks from seals on pumps, compressors, agitator and valve seals on piping components in light liquid and gas VOC service quarterly. Gas or hydraulic check new and a replaced connectors prior to returning to service, or monitor with Method 21 within 15 days of returning to service. Leak detection and repair (LDAR) Program 28M has a leak definition where repair action is required at 10,000 ppmv. LDAR Program 28 VHP has a leak definition where repair action is required at 500 ppmv for valves and connectors and 2000 ppmv for pumps, compressors and agitators. Check connectors weekly using audio, visual or olfactory (AVO) senses to observe leaks. Record results and corrective action taken.	Yes	Third Coast has implemented an audio, visual, or olfactory (AVO) program. Audio, olfactory, and visual inspections shall be made of quick connect joints, fittings, and hoses in VOC service during all loading operations.

Texas Commission on Environmental Quality
Form PI-1 General Application
Materials

Date: October 2020
Permit #: 92403
Company: Third Coast Packaging, Inc.

Item	How submitted	Date submitted
A. Administrative Information		
Form PI-1 General Application	STEERS	10/14/2020
Hard copy of the General sheet with original (ink) signature	STEERS	10/14/2020
Professional Engineer Seal	Not applicable	
B. General Information		
Copy of current permit (both Special Conditions and MAERT)		
Core Data Form		
Area map	STEERS	10/14/2020
Plot plan	STEERS	10/14/2020
Process description	STEERS	10/14/2020
Process flow diagram	STEERS	10/14/2020
List of MSS activities		
State regulatory requirements discussion	STEERS	10/14/2020
C. Federal Applicability		
Summary and project emission increase determination - Tables 1F and 2F	Not applicable	
Netting analysis (if required) - Tables 3F and 4F as needed		
D. Technical Information		
BACT discussion, if additional details are attached	STEERS	10/14/2020
Monitoring information, if additional details are attached	STEERS	10/14/2020
Material Balance (if applicable)		
Calculations	STEERS	10/14/2020
E. Impacts Analysis		
Qualitative impacts analysis	Not applicable	
MERA analysis	STEERS	10/14/2020
Electronic Modeling Evaluation Workbook: SCREEN3	Not applicable	
Electronic Modeling Evaluation Workbook: NonSCREEN3	STEERS	10/14/2020
PSD modeling protocol	Not applicable	
F. Additional Attachments		

Appendix B
Emission Calculations

- Please refer to *Appendix B – 92403 Emissions & UIM Calculations Excel Workbook* (Submitted via STEERS)

Third Coast Packaging, Inc.
NSR PERMIT 92403 RENEWAL AND AMENDMENT APPLICATION
EMISSION CALCULATIONS
October 2020

Table B-1: Feige Attachment I Chemicals

I. Basis

Feige loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the Feige automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses.

Maximum Vapor Pressure of product loaded	0.37	psia
Average Vapor Pressure of product loaded	0.16	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	106.17	lb/lbmol
Average Vapor Molecular weight	106.17	lb/lbmol
Maximum Fill Rate	3,300	gal/hr
Annual Fill Rate	28,908,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Ethyl benzene

$$L_L = 12.46 \times 3.70E\text{-}01 \text{ psia} \times \frac{106.17 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 0.437 \frac{\text{lb}}{1000 \text{ gal}}$$

$$3{,}300 \frac{\text{gal}}{\text{hr}} \times \frac{0.437}{1000} \frac{\text{lb}}{\text{gal}} = \boxed{1.44 \frac{\text{lb}}{\text{hr}}}$$

III. Annual Emissions Example -Ethyl benzene

$$L_L = 12.46 \times 1.55E\text{-}01 \text{ psia} \times \frac{106.17 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 0.194 \frac{\text{lb}}{1000 \text{ gal}}$$

$$28{,}908{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{0.194}{1000} \frac{\text{lb}}{\text{gal}} \times \frac{1}{2000} \frac{\text{ton}}{\text{lb}} = \boxed{2.80 \frac{\text{ton}}{\text{yr}}}$$

Third Coast Packaging, Inc.
NSR PERMIT 92403 RENEWAL AND AMENDMENT APPLICATION
EMISSION CALCULATIONS
October 2020

Table B-1: Feige Attachment I Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency (Uncontrolled)	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Acetone cyanohydrin	75-86-5	0.01	0.01	85.11	0.011	0.006	3,300	28,908,000	0.00%	0.04	0.09
aliphatic dibasic esters (DBE), generic	-------	0.01	0.00	174.2	0.026	0.009	3,300	28,908,000	0.00%	0.09	0.12
Amyl alcohol, n- (odor) (1-Pentanol)	71-41-0	0.18	0.06	88.15	0.177	0.061	3,300	28,908,000	0.00%	0.58	0.88
amyl alcohol, sec- or t- (as amyl alcohol)	75-85-4	0.18	0.06	88.15	0.177	0.061	3,300	28,908,000	0.00%	0.58	0.88
Aromatic 150	64742-94-5	0.03	0.01	120	0.037	0.017	3,300	28,908,000	0.00%	0.12	0.24
Benzoic acid	65-85-0	0.00	0.00	122.13	0.000	0.000	3,300	28,908,000	0.00%	1.22E-04	2.56E-05
Butanol	71-36-3	0.29	0.09	74.12	0.243	0.080	3,300	28,908,000	0.00%	0.80	1.16
Butyl proprionate	590-01-2	0.10	0.10	130.19	0.145	0.153	3,300	28,908,000	0.00%	0.48	2.21
Chloroacetic acid (mixed isomers)	-------	0.01	0.00	94.5	0.015	0.005	3,300	28,908,000	0.00%	0.05	0.07
chloroacetic acid (monochloroacetic acid)	79-11-8	0.01	0.01	94.5	0.015	0.009	3,300	28,908,000	0.00%	0.05	0.13
Daxx 91-6	68439-46-3	0.01	0.00	378.6	0.056	0.015	3,300	28,908,000	0.00%	0.18	0.21
decylmercaptan	143-10-2	0.00	0.00	174.4	0.002	0.000	3,300	28,908,000	0.00%	6.59E-03	4.29E-03
Dichloroacetic acid	79-43-6	0.01	0.00	128.94	0.018	0.005	3,300	28,908,000	0.00%	0.06	0.07
dichlorobenzene, o- (as p-dichlorobenzene)	95-50-1	0.06	0.03	147.01	0.105	0.044	3,300	28,908,000	0.00%	0.35	0.63
dihydroxylbenzene, 1,4- (p-hydroquinone, hydroxyquinone)	123-31-9	0.00	0.00	110.11	0.000	0.000	3,300	28,908,000	0.00%	9.17E-08	1.49E-09
dipropylene glycol (DPG)	110-98-5	0.00	0.00	134.2	0.001	0.000	3,300	28,908,000	0.00%	3.45E-03	3.67E-03
dodecyl mercaptan (lauryl mercaptan)	112-55-0	0.00	0.00	202.39	0.001	0.000	3,300	28,908,000	0.00%	3.58E-03	2.28E-03
Ethyl benzene	100-41-4	0.37	0.16	106.17	0.437	0.194	3,300	28,908,000	0.00%	1.44	2.80
2-Ethylhexyl Nitrate	27247-96-7	0.02	0.00	175.23	0.030	0.007	3,300	28,908,000	0.00%	0.10	0.10
Heptanoic Acid	111-14-8	0.01	0.00	130.19	0.009	0.003	3,300	28,908,000	0.00%	0.03	0.04
hexadecyl mercaptan (cetyl mercaptan)	2917-26-2	0.00	0.00	258.51	0.000	0.000	3,300	28,908,000	0.00%	5.24E-09	2.41E-11
hydroquinone monomethyl ether (methoxyphenol, 4-)	150-76-5	0.00	0.00	124.15	0.000	0.000	3,300	28,908,000	0.00%	2.56E-10	6.70E-14
Isoparaffin Solvent (mixture C9 - C11 isoalkanes) (e.g. Isane IP 175)	68551-16-6	0.19	0.19	142.2817	0.306	0.324	3,300	28,908,000	0.00%	1.01	4.68
JP-5	8008-20-6	0.10	0.04	130	0.144	0.063	3,300	28,908,000	0.00%	0.47	0.91
methacrylic acid	79-41-4	0.05	0.01	86.09	0.050	0.014	3,300	28,908,000	0.00%	0.17	0.20
Methane Suflonic Acid	75-75-2	0.00	0.00	96.1	0.000	0.000	3,300	28,908,000	0.00%	1.15E-04	1.11E-04
methyl styrene, a- (odor) (also for m, o,and p-isomers)	98-83-9	0.10	0.04	118.17	0.135	0.054	3,300	28,908,000	0.00%	0.45	0.78
Naphthenic Acid	1338-24-5	0.09	0.06	250	0.242	0.179	3,300	28,908,000	0.00%	0.80	2.59
nonylmercaptan, n-	1455-21-6	0.01	0.00	160.32	0.014	0.003	3,300	28,908,000	0.00%	0.05	0.05
Octane	111-65-9	0.41	0.19	114.2	0.517	0.253	3,300	28,908,000	0.00%	1.71	3.65
Oxalic acid (in solution)	144-62-7	0.00	0.00	126.07	0.000	0.000	3,300	28,908,000	0.00%	8.96E-05	4.14E-04
piperazine	110-85-0	0.02	0.00	86.1356	0.015	0.003	3,300	28,908,000	0.00%	0.05	0.05
piperazine dihydrochloride	142-64-3	0.00	0.00	159.05	0.000	0.000	3,300	28,908,000	0.00%	5.84E-04	2.70E-03
polybutenes	9003-29-6	0.00	0.00	2300	0.022	0.007	3,300	28,908,000	0.00%	0.07	0.10
Polyisobutylene	9003-27-4	0.04	0.03	1250	0.487	0.368	3,300	28,908,000	0.00%	1.61	5.31
THDCPD (JP-10)	2825-82-3	0.09	0.03	136.2	0.129	0.047	3,300	28,908,000	0.00%	0.43	0.68
Themah SLM	105-59-9	0.00	0.00	119.16	0.000	0.000	3,300	28,908,000	0.00%	8.23E-04	6.86E-04
Tergitol	60828-78-6	0.00	0.00	581.6	0.001	0.001	3,300	28,908,000	0.00%	4.13E-03	0.02
tert-dodecyl mercaptan	25103-58-6	0.00	0.00	202.4	0.011	0.003	3,300	28,908,000	0.00%	0.04	0.05
Trichloroacetic acid	76-03-9	0.01	0.00	163.39	0.013	0.003	3,300	28,908,000	0.00%	0.04	0.04
Trichloropropane, 1,2,3-	96-18-4	0.08	0.05	147.43	0.138	0.081	3,300	28,908,000	0.00%	0.45	1.17
Triethylenetetramine	112-24-3	0.00	0.00	146.2	0.001	0.000	3,300	28,908,000	0.00%	3.72E-03	4.03E-03
trimethyl acetic acid	75-98-9	0.04	0.01	102.13	0.047	0.016	3,300	28,908,000	0.00%	0.16	0.23
Toluene Diisocyanate	26471-62-5	0.00	0.00	251	0.004	0.001	3,300	28,908,000	0.00%	0.01	0.02
Unimax SD 200	111-40-0	0.00	0.00	103.2	0.003	0.001	3,300	28,908,000	0.00%	0.01	0.01
xylene, mixed or all isomers, except p- (odor)	1330-20-7	0.33	0.13	106.17	0.388	0.159	3,300	28,908,000	0.00%	1.28	2.29
xylene, p- (odor)	106-42-3	0.34	0.14	106.17	0.405	0.169	3,300	28,908,000	0.00%	1.34	2.44

Third Coast Packaging, Inc.
NSR PERMIT 92403 RENEWAL AND AMENDMENT APPLICATION
EMISSION CALCULATIONS
October 2020

Table B-1: Feige Attachment I Chemicals

V. Maximum Hourly and Annual VOC Emissions (Attachment I)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
0.52	0.05	3,300	28,908,000	0.00%	1.71	0.74

Third Coast Packaging, Inc.
NSR Permit 92403 Renewal and Amendment Application
Drum and Tote Packaging Facility
October 2020

Table B-2: Feige Attachment II Chemicals

I. Basis

Feige loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the Feige automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment II chemicals are controlled by an RTO with a destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	#REF!	psia
Average Vapor Pressure of product loaded	#REF!	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	#REF!	lb/lbmol
Average Vapor Molecular weight	#REF!	lb/lbmol
Maximum Fill Rate	3,300	gal/hr
Annual Fill Rate	28,908,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Methyl Tert Butyl Ether (MTBE)

L_L = 12.46 × #REF! psia × #REF! lb/lb mole × 0.5/559.67 °R = #REF! lb/1000 gal

3,300 gal/hr × #REF! lb/1000 gal × #REF! × 100% - Control Efficiency = #REF! lb/hr

III. Annual Emissions Example -Methyl Tert Butyl Ether (MTBE)

L_L = 12.46 × #REF! psia × #REF! lb/lb mole × 0.5/529.67 °R = #REF! lb/1000 gal

28,908,000 gal/yr × #REF! lb/1000 gal × 1/2000 ton/lb × #REF! × 100% - Control Efficiency = #REF! ton/yr

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Table B-2: Feige Attachment II Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
acetic acid, glacial (ethanoic acid, water-free acetic acid)	64-19-7	0.60	0.23	60.05	0.40	0.17	3,300	28,908,000	99.00%	0.01	0.02
Acetic anhydride	108-24-7	0.24	0.08	102.09	0.27	0.10	3,300	28,908,000	99.00%	8.81E-03	0.01
Acetone Exempt Solvent (ES)	67-64-1	7.25	3.71	58.08	4.69	2.54	3,300	28,908,000	99.00%	0.15	0.37
Acetonitrile	75-05-8	3.13	1.41	41.05	1.43	0.68	3,300	28,908,000	99.00%	0.05	0.10
Acrylic acid	79-10-7	0.17	0.06	72.06	0.14	0.05	3,300	28,908,000	99.00%	4.47E-03	6.76E-03
Acrylonitrile	107-13-1	4.02	1.80	53.06	2.38	1.12	3,300	28,908,000	99.00%	0.08	0.16
Alkylates	-------	1.55	0.73	100	1.73	0.85	3,300	28,908,000	99.00%	0.06	0.12
Amyl acetate, n- (odor)	628-63-7	1.28	0.72	130.17	1.85	1.10	3,300	28,908,000	99.00%	0.06	0.16
Butyl acetate, n-	123-86-4	0.49	0.21	116.16	0.63	0.28	3,300	28,908,000	99.00%	0.02	0.04
butyl acetate, tert- (TBAC) ES	540-88-5	1.32	0.63	116.16	1.70	0.86	3,300	28,908,000	99.00%	0.06	0.12
Butyl acrylate	141-32-2	0.21	0.08	128.17	0.31	0.12	3,300	28,908,000	99.00%	0.01	0.02
Butyl alcohol, tert- (methyl-2-propanol, 2-)	75-65-0	1.70	0.64	74.12	1.40	0.56	3,300	28,908,000	99.00%	0.05	0.08
Butyl ether	142-96-1	0.26	0.10	130.23	0.37	0.16	3,300	28,908,000	99.00%	0.01	0.02
Butyl Hydroperoxide, tert-	75-91-2	0.44	0.21	90.2	0.45	0.22	3,300	28,908,000	99.00%	0.01	0.03
Cresylate (odor)	1319-77-3	0.65	0.36	108.13	0.78	0.46	3,300	28,908,000	99.00%	0.03	0.07
Cyclohexane	110-82-7	3.25	1.61	84.16	3.04	1.59	3,300	28,908,000	99.00%	0.10	0.23
Cyclohexanone	108-94-1	0.75	0.41	98.15	0.82	0.47	3,300	28,908,000	99.00%	0.03	0.07
Dialkyl phthalates, C6-C11	68515-43-5	0.87	0.70	390	3.78	3.21	3,300	28,908,000	99.00%	0.12	0.46
Diisobutylene	25167-70-8	1.56	0.70	112.22	1.94	0.92	3,300	28,908,000	99.00%	0.06	0.13
DMO	51200-87-4	0.31	0.12	101.15	0.35	0.15	3,300	28,908,000	99.00%	0.01	0.02
DSD 601	287-92-3	2.62	1.38	70.1	2.04	1.14	3,300	28,908,000	99.00%	0.07	0.16
Ethanol	64-17-5	2.32	0.87	46.07	1.19	0.47	3,300	28,908,000	99.00%	0.04	0.07
Ethyl acetate	141-78-6	3.19	1.49	88.11	3.13	1.54	3,300	28,908,000	99.00%	0.10	0.22
Ethyl acrylate (odor)	140-88-5	1.47	0.60	100.11	1.64	0.71	3,300	28,908,000	99.00%	0.05	0.10
Ethylene diamine	107-15-3	0.57	0.22	60.1	0.38	0.15	3,300	28,908,000	99.00%	0.01	0.02
Ethylene glycol monoethyl ether (Cellosolve)	110-80-5	0.23	0.08	90.12	0.23	0.08	3,300	28,908,000	99.00%	7.65E-03	0.01
Formalin (37-50% formaldehyde)	50-00-0	0.13	0.04	30.03	0.04	0.01	3,300	28,908,000	99.00%	1.43E-03	1.89E-03
Formic acid	64-18-6	1.49	0.69	46	0.77	0.37	3,300	28,908,000	99.00%	0.03	0.05
Gasoline	8006-61-9	14.70	11.93	72.15	11.80	10.12	3,300	28,908,000	99.00%	0.39	1.46
Glutaraldehyde (50%) in solution (e.g. UCARCIDE 250)	111-30-8	0.01	0.00	100.12	0.01	0.00	3,300	28,908,000	99.00%	2.94E-04	6.59E-04
Heptane	142-82-5	1.59	0.74	100.21	1.77	0.87	3,300	28,908,000	99.00%	0.06	0.13
Hexamethylenediamine soln.	124-09-4	0.06	0.06	116.21	0.08	0.08	3,300	28,908,000	99.00%	2.56E-03	0.01
Hexane	110-54-3	4.89	2.47	86.17	4.69	2.50	3,300	28,908,000	99.00%	0.15	0.36
Hexanol (odor)	111-27-3	0.74	0.42	102.18	0.85	0.50	3,300	28,908,000	99.00%	0.03	0.07
Hexene (odor)	592-41-6	5.99	3.04	84.16	5.61	3.00	3,300	28,908,000	99.00%	0.19	0.43
Hydrotreated Light Naphtha	64742-49-0	1.59	0.73	70.21	1.24	0.60	3,300	28,908,000	99.00%	0.04	0.09
hydroxy acetic acid (glycolic acid)	79-14-1	0.16	0.16	76.05	0.13	0.14	3,300	28,908,000	99.00%	4.38E-03	0.02
isoamyl alcohol (odor)	123-51-3	0.15	0.05	88.15	0.15	0.05	3,300	28,908,000	99.00%	4.92E-03	6.89E-03
Isoamyl ketone	-------	0.67	0.31	100.16	0.75	0.36	3,300	28,908,000	99.00%	0.02	0.05
Isobutanol	78-83-1	0.51	0.17	74.12	0.42	0.15	3,300	28,908,000	99.00%	0.01	0.02
isobutyric acid (2-methylpropanoic acid)	79-31-2	0.07	0.02	88	0.07	0.02	3,300	28,908,000	99.00%	2.23E-03	2.99E-03
Isobutyladehyde	78-84-2	5.55	2.77	72.1	4.45	2.34	3,300	28,908,000	99.00%	0.15	0.34
Isododecane	13475-82-6	0.06	0.02	170.34	0.12	0.05	3,300	28,908,000	99.00%	4.07E-03	6.66E-03
Isooctane	540-84-1	1.60	0.74	114.23	2.03	1.00	3,300	28,908,000	99.00%	0.07	0.14

Table B-2: Feige Attachment II Chemicals

Isopropyl alcohol	67-63-0	1.78	0.67	60.1	1.19	0.47	3,300	28,908,000	99.00%	0.04	0.07
Mesityl oxide	141-79-7	0.45	0.18	98.2	0.49	0.21	3,300	28,908,000	99.00%	0.02	0.03
Methanol	67-56-1	4.53	1.95	32.04	1.61	0.74	3,300	28,908,000	99.00%	0.05	0.11
methoxydihydropyran (MDP)	4454-05-1	0.39	0.15	114	0.49	0.21	3,300	28,908,000	99.00%	0.02	0.03
Methyl acrylate (odor)	96-33-3	3.06	1.35	86.09	2.93	1.37	3,300	28,908,000	99.00%	0.10	0.20
Methyl amyl alcohol (methyl isobutyl carbinol)	108-11-2	0.27	0.10	102.18	0.31	0.12	3,300	28,908,000	99.00%	0.01	0.02
Methyl ethyl ketone	78-93-3	3.35	1.49	72.11	2.69	1.26	3,300	28,908,000	99.00%	0.09	0.18
Methyl Isobutyl Ketone	108-10-1	1.73	0.74	100.16	1.93	0.88	3,300	28,908,000	99.00%	0.06	0.13
Methyl isopropyl ketone	563-80-4	4.23	2.14	86.15	4.06	2.17	3,300	28,908,000	99.00%	0.13	0.31
Methyl methacrylate	80-62-6	1.43	0.64	100.12	1.59	0.75	3,300	28,908,000	99.00%	0.05	0.11
methyl t-butyl ether (MTBE) (HAP)	1634-04-4	8.23	3.94	88.1	8.07	4.09	3,300	28,908,000	99.00%	0.27	0.59
Nitroethane	79-24-3	0.73	0.31	75.07	0.61	0.27	3,300	28,908,000	99.00%	0.02	0.04
Nitropropane	79-46-9	0.60	0.24	89.1	0.59	0.25	3,300	28,908,000	99.00%	0.02	0.04
Nonene (odor)	124-11-8	0.22	0.08	126.2	0.31	0.12	3,300	28,908,000	99.00%	0.01	0.02
Octene, 1- (odor)	111-66-0	0.66	0.24	112.21	0.82	0.31	3,300	28,908,000	99.00%	0.03	0.05
Pelargonic Acid	112-05-0	0.00	0.00	158.23	0.00	0.00	3,300	28,908,000	99.00%	7.38E-05	8.43E-05
Propanol	71-23-8	0.73	0.26	60.1	0.49	0.18	3,300	28,908,000	99.00%	0.02	0.03
Propionic acid	79-09-4	0.18	0.07	74.08	0.15	0.06	3,300	28,908,000	99.00%	4.84E-03	8.19E-03
Propionaldehyde	123-38-6	9.99	5.01	58.08	6.46	3.42	3,300	28,908,000	99.00%	0.21	0.49
Propyl acetate	109-60-4	1.23	0.51	102.13	1.40	0.62	3,300	28,908,000	99.00%	0.05	0.09
Solane 100-140	64741-84-0	1.64	0.76	100.21	1.83	0.90	3,300	28,908,000	99.00%	0.06	0.13
Styrene	100-42-5	0.25	0.10	104.15	0.29	0.12	3,300	28,908,000	99.00%	9.72E-03	0.02
Toluene	108-88-3	1.01	0.43	92.14	1.03	0.46	3,300	28,908,000	99.00%	0.03	0.07
Turpentine	8006-64-2	0.90	0.64	136.23	1.37	1.02	3,300	28,908,000	99.00%	0.05	0.15
Vinyl acetate	108-05-4	4.02	1.72	86.09	3.85	1.74	3,300	28,908,000	99.00%	0.13	0.25

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Table B-2: Feige Attachment II Chemicals

V. Maximum Hourly and Annual VOC Emissions (Attachment II)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
11.80	0.92	3,300	28,908,000	99.00%	0.39	0.13

VI. Maximum Hourly and Annual Exempt Solvent (ES) Emissions (Attachment II)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
4.69	1.70	3,300	28,908,000	99.00%	0.15	0.25

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Table B-3: Feige Attachment III Chemicals

I. Basis

Feige loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the Feige automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment III chemicals are controlled by an RTO followed by a scrubber system with a combined destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	8.78	psia
Average Vapor Pressure of product loaded	4.56	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	76.16	lb/lbmol
Average Vapor Molecular weight	76.16	lb/lbmol
Maximum Fill Rate	3,300	gal/hr
Annual Fill Rate	28,908,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Isopropyl Mercaptan

$$L_L = 12.46 \times 8.78E{+}00 \text{ psia} \times \frac{76.16 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 7.442 \frac{\text{lb}}{1000 \text{ gal}}$$

$$3{,}300 \frac{\text{gal}}{\text{hr}} \times \frac{7.442 \text{ lb}}{1000 \text{ gal}} \times 1.00\% \text{ (100\% - Control Efficiency)} = 0.25 \frac{\text{lb}}{\text{hr}}$$

III. Annual Emissions Example - Isopropyl Mercaptan

$$L_L = 12.46 \times 4.56E{+}00 \text{ psia} \times \frac{76.16 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 4.085 \frac{\text{lb}}{1000 \text{ gal}}$$

$$28{,}908{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{4.085 \text{ lb}}{1000 \text{ gal}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1.00\% \text{ (100\% - Control Efficiency)} = 0.59 \frac{\text{ton}}{\text{yr}}$$

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Table B-3: Feige Attachment III Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Allyl chloride	107-05-1	11.03	5.97	76.53	9.39	5.37	3,300	28,908,000	99.00%	0.31	0.78
butyl mercaptan, n- (odor)	109-79-5	1.51	0.69	90.2	1.52	0.73	3,300	28,908,000	99.00%	0.05	0.11
carbon tetrachloride (tetrachloromethane, perchloromethane)	56-23-5	3.77	1.81	153.84	6.46	3.27	3,300	28,908,000	99.00%	0.21	0.47
Chlorinated solvent	-------	1.17	0.79	124.82	1.62	1.16	3,300	28,908,000	99.00%	0.05	0.17
chloroacetylchloride	79-04-9	0.96	0.62	113	1.21	0.83	3,300	28,908,000	99.00%	0.04	0.12
Chlorobenzene	108-90-7	0.49	0.19	112.56	0.62	0.26	3,300	28,908,000	99.00%	0.02	0.04
chloroform (trichloromethane)	67-66-3	6.34	3.24	119.39	8.43	4.55	3,300	28,908,000	99.00%	0.28	0.66
cyclohexylmercaptan	1569-69-3	0.20	0.08	116.23	0.25	0.11	3,300	28,908,000	99.00%	8.36E-03	0.02
Dichloroethane, 1,2- (Ethylene Dichloride)	107-06-2	2.72	1.25	98.96	2.99	1.45	3,300	28,908,000	99.00%	0.10	0.21
Dichloroethylene, 1,2- (acetylene dichloride)	540-59-0	8.27	3.64	97	8.93	4.15	3,300	28,908,000	99.00%	0.29	0.60
dichloromethane (DCM or methylene chloride) ES	75-09-2	13.34	6.70	84.93	12.61	6.69	3,300	28,908,000	99.00%	0.42	0.97
Epichlorohydrin	106-89-8	0.65	0.26	92.53	0.67	0.28	3,300	28,908,000	99.00%	0.02	0.04
1,2-ethanedithiol (ethylenedimercaptan) (odor)	540-63-6	0.20	0.07	94.2	0.21	0.07	3,300	28,908,000	99.00%	6.86E-03	0.01
heptylmercaptan (odor)	1639-09-4	0.06	0.02	132.27	0.09	0.03	3,300	28,908,000	99.00%	2.99E-03	4.25E-03
hexyl mercaptan	111-31-9	0.19	0.07	118.24	0.25	0.09	3,300	28,908,000	99.00%	8.36E-03	0.01
isopropyl mercaptan	75-33-2	8.78	4.56	76.16	7.44	4.08	715	28,908,000	99.00%	0.05	0.59
nonyl mercaptan, tertiary- (as n-nonyl mercaptan)	25360-10-5	0.10	0.10	160.3	0.18	0.19	3,300	28,908,000	99.00%	5.89E-03	0.03
octadecyl mercaptan (stearyl mercaptan)	2885-00-9	0.21	0.21	286.56	0.68	0.72	3,300	28,908,000	99.00%	0.02	0.10
octyl mercaptan	111-88-6	0.04	0.01	146.29	0.06	0.02	3,300	28,908,000	99.00%	2.13E-03	3.02E-03
perchloroethylene (tetrachloroethylene)	127-18-4	0.73	0.43	165.83	1.35	0.84	3,300	28,908,000	99.00%	0.04	0.12
perchloromethyl mercaptan	594-42-3	0.24	0.09	185.87	0.50	0.19	3,300	28,908,000	99.00%	0.02	0.03
propyl mercaptan, n- (odor)	107-03-9	5.07	2.51	76.16	4.30	2.25	3,300	28,908,000	99.00%	0.14	0.32
Propylene dichloride (odor)	78-87-5	1.25	0.69	112.99	1.57	0.92	3,300	28,908,000	99.00%	0.05	0.13
phenyl mercaptan (odor)	108-98-5	0.07	0.02	110.18	0.09	0.03	3,300	28,908,000	99.00%	3.00E-03	4.12E-03
Tetrahydrofuran (THF)	109-99-9	5.26	2.57	72.1	4.22	2.18	3,300	28,908,000	99.00%	0.14	0.32
Trichloroethane, 1,1,1- (methyl chloroform) ES	71-55-6	4.15	2.03	133.41	6.17	3.18	3,300	28,908,000	99.00%	0.20	0.46
trichloroethylene	79-01-6	2.61	1.20	131.39	3.82	1.86	3,300	28,908,000	99.00%	0.13	0.27
trifluoroacetic acid	76-05-1	3.74	1.69	114.02	4.74	2.26	3,300	28,908,000	99.00%	0.16	0.33

V. Maximum Hourly and Annual VOC Emissions (Attachment III)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
12.61	1.71	3,300	28,908,000	99.00%	0.42	0.25

VI. Maximum Hourly and Annual Exempt Solvent (ES) Emissions (Attachment III)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
12.61	4.94	3,300	28,908,000	99.00%	0.42	0.71

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Table B-4: Feige Attachment IV Chemicals

I. Basis

Feige loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the Feige automated high-speed filling machine. The loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment IV chemicals are controlled by a scrubber system with a destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	7.93	psia
Average Vapor Pressure of product loaded	3.29	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	36.46	lb/lbmol
Average Vapor Molecular weight	36.46	lb/lbmol
Maximum Fill Rate	3,300	gal/hr
Annual Fill Rate	28,908,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Hydrochloric acid

$$L_L = 12.46 \times 7.93E+00 \text{ psia} \times \frac{36.46 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 3.218 \frac{\text{lb}}{1000 \text{ gal}}$$

$$3{,}300 \frac{\text{gal}}{\text{hr}} \times \frac{3.218}{1000} \frac{\text{lb}}{\text{gal}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.11 \frac{\text{lb}}{\text{hr}}}$$

III. Annual Emissions Example - Hydrochloric acid

$$L_L = 12.46 \times 3.29E+00 \text{ psia} \times \frac{36.46 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 1.410 \frac{\text{lb}}{1000 \text{ gal}}$$

$$28{,}908{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{1.410}{1000} \frac{\text{lb}}{\text{gal}} \times \frac{1}{2000} \frac{\text{ton}}{\text{lb}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.20 \frac{\text{ton}}{\text{yr}}}$$

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Table B-4: Feige Attachment IV Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Hydrochloric Acid (HCl)	7647-01-0	7.929	3.287	36.46	3.22	1.41	3,300	28,908,000	99.00%	0.11	0.20

V. Maximum Hourly and Annual VOC Emissions (Attachment IV)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughtput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
3.22	1.41	3,300	28,908,000	99.00%	0.11	0.20

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Table B-5: PACK'R Attachment I Chemicals

I. Basis

PACK'R loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the PACK'R automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses.

Maximum Vapor Pressure of product loaded	0.37	psia	
Average Vapor Pressure of product loaded	0.16	psia	
Maximum Temp of product loaded	559.67	°R	
Average Temp of product loaded	529.67	°R	
Maximum Molecular weight	106.17	lb/lbmol	
Average Vapor Molecular weight	106.17	lb/lbmol	
Maximum Fill Rate	6,600	gal/hr	
Annual Fill Rate	41,184,000	gal/yr	6,240
Method of loading	Submerged loading: dedicated normal service		
Saturation Factor (S)	0.5		

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Ethyl benzene

$$L_L = 12.46 \times 3.70E\text{-}01 \text{ psia} \times 106.17 \frac{\text{lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 0.437 \frac{\text{lb}}{1000 \text{ gal}}$$

$$6{,}600 \frac{\text{gal}}{\text{hr}} \times \frac{0.437}{1000} \frac{\text{lb}}{\text{gal}} = \boxed{2.89 \frac{\text{lb}}{\text{hr}}}$$

III. Annual Emissions Example -Ethyl benzene

$$L_L = 12.46 \times 1.55E\text{-}01 \text{ psia} \times 106.17 \frac{\text{lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 0.194 \frac{\text{lb}}{1000 \text{ gal}}$$

$$41{,}184{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{0.194}{1000} \frac{\text{lb}}{\text{gal}} \times \frac{1}{2000} \frac{\text{ton}}{\text{lb}} = \boxed{3.99 \frac{\text{ton}}{\text{yr}}}$$

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Table B-5: PACK'R Attachment I Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency (Uncontrolled)	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Acetone cyanohydrin	75-86-5	0.01	0.01	85.11	0.011	0.006	6,600	41,184,000	0.00%	0.08	0.12
aliphatic dibasic esters (DBE), generic	-------	0.01	0.00	174.2	0.026	0.009	6,600	41,184,000	0.00%	0.17	0.18
Amyl alcohol, n- (odor) (1-Pentanol)	71-41-0	0.18	0.06	88.15	0.177	0.061	6,600	41,184,000	0.00%	1.17	1.26
amyl alcohol, sec- or t- (as amyl alcohol)	75-85-4	0.18	0.06	88.15	0.177	0.061	6,600	41,184,000	0.00%	1.17	1.26
Aromatic 150	64742-94-5	0.03	0.01	120	0.037	0.017	6,600	41,184,000	0.00%	0.25	0.35
Benzoic acid	65-85-0	0.00	0.00	122.13	0.000	0.000	6,600	41,184,000	0.00%	2.44E-04	3.65E-05
Butanol	71-36-3	0.29	0.09	74.12	0.243	0.080	6,600	41,184,000	0.00%	1.60	1.65
Butyl proprionate	590-01-2	0.10	0.10	130.19	0.145	0.153	6,600	41,184,000	0.00%	0.96	3.15
Chloroacetic acid (mixed isomers)	-------	0.01	0.00	94.5	0.015	0.005	6,600	41,184,000	0.00%	0.10	0.10
chloroacetic acid (monochloroacetic acid)	79-11-8	0.01	0.01	94.5	0.015	0.009	6,600	41,184,000	0.00%	0.10	0.18
Daxx 91-6	68439-46-3	0.01	0.00	378.6	0.056	0.015	6,600	41,184,000	0.00%	0.37	0.31
decylmercaptan	143-10-2	0.00	0.00	174.4	0.002	0.000	6,600	41,184,000	0.00%	0.01	6.12E-03
Dichloroacetic acid	79-43-6	0.01	0.00	128.94	0.018	0.005	6,600	41,184,000	0.00%	0.12	0.10
dichlorobenzene, o- (as p-dichlorobenzene)	95-50-1	0.06	0.03	147.01	0.105	0.044	6,600	41,184,000	0.00%	0.69	0.90
dihydroxylbenzene, 1,4- (p-hydroquinone, hydroxyquinone)	123-31-9	0.00	0.00	110.11	0.000	0.000	6,600	41,184,000	0.00%	1.83E-07	2.13E-09
dipropylene glycol (DPG)	110-98-5	0.00	0.00	134.2	0.001	0.000	6,600	41,184,000	0.00%	6.90E-03	5.23E-03
dodecyl mercaptan (lauryl mercaptan)	112-55-0	0.00	0.00	202.39	0.001	0.000	6,600	41,184,000	0.00%	7.16E-03	3.25E-03
Ethyl benzene	100-41-4	0.37	0.16	106.17	0.437	0.194	6,600	41,184,000	0.00%	2.89	3.99
2-Ethylhexyl Nitrate	27247-96-7	0.02	0.00	175.23	0.030	0.007	6,600	41,184,000	0.00%	0.20	0.14
Heptanoic Acid	111-14-8	0.01	0.00	130.19	0.009	0.003	6,600	41,184,000	0.00%	0.06	0.06
hexadecyl mercaptan (cetyl mercaptan)	2917-26-2	0.00	0.00	258.51	0.000	0.000	6,600	41,184,000	0.00%	1.05E-08	3.43E-11
hydroquinone monomethyl ether (methoxyphenol, 4-)	150-76-5	0.00	0.00	124.15	0.000	0.000	6,600	41,184,000	0.00%	5.12E-10	9.55E-14
Isoparaffin Solvent (mixture C9 - C11 isoalkanes) (e.g. Isane IP 175)	68551-16-6	0.19	0.19	142.2817	0.306	0.324	6,600	41,184,000	0.00%	2.02	6.66
JP-5	8008-20-6	0.10	0.04	130	0.144	0.063	6,600	41,184,000	0.00%	0.95	1.29
methacrylic acid	79-41-4	0.05	0.01	86.09	0.050	0.014	6,600	41,184,000	0.00%	0.33	0.29
Methane Suflonic Acid	75-75-2	0.00	0.00	96.1	0.000	0.000	6,600	41,184,000	0.00%	2.30E-04	1.58E-04
methyl styrene, a- (odor) (also for m, o,and p-isomers)	98-83-9	0.10	0.04	118.17	0.135	0.054	6,600	41,184,000	0.00%	0.89	1.12
Naphthenic Acid	1338-24-5	0.09	0.06	250	0.242	0.179	6,600	41,184,000	0.00%	1.60	3.69
nonylmercaptan, n-	1455-21-6	0.01	0.00	160.32	0.014	0.003	6,600	41,184,000	0.00%	0.09	0.07
Octane	111-65-9	0.41	0.19	114.2	0.517	0.253	6,600	41,184,000	0.00%	3.41	5.20
Oxalic acid (in solution)	144-62-7	0.00	0.00	126.07	0.000	0.000	6,600	41,184,000	0.00%	1.79E-04	5.90E-04
piperazine	110-85-0	0.02	0.00	86.1356	0.015	0.003	6,600	41,184,000	0.00%	0.10	0.07
piperazine dihydrochloride	142-64-3	0.00	0.00	159.05	0.000	0.000	6,600	41,184,000	0.00%	1.17E-03	3.85E-03
polybutenes	9003-29-6	0.00	0.00	2300	0.022	0.007	6,600	41,184,000	0.00%	0.15	0.14
Polyisobutylene	9003-27-4	0.04	0.03	1250	0.487	0.368	6,600	41,184,000	0.00%	3.21	7.57
THDCPD (JP-10)	2825-82-3	0.09	0.03	136.2	0.129	0.047	6,600	41,184,000	0.00%	0.85	0.97
Themah SLM	105-59-9	0.00	0.00	119.16	0.000	0.000	6,600	41,184,000	0.00%	1.65E-03	9.77E-04
Tergitol	60828-78-6	0.00	0.00	581.6	0.001	0.001	6,600	41,184,000	0.00%	8.26E-03	0.03
tert-dodecyl mercaptan	25103-58-6	0.00	0.00	202.4	0.011	0.003	6,600	41,184,000	0.00%	0.07	0.07
Trichloroacetic acid	76-03-9	0.01	0.00	163.39	0.013	0.003	6,600	41,184,000	0.00%	0.08	0.06
Trichloropropane, 1,2,3-	96-18-4	0.08	0.05	147.43	0.138	0.081	6,600	41,184,000	0.00%	0.91	1.66
Triethylenetetramine	112-24-3	0.00	0.00	146.2	0.001	0.000	6,600	41,184,000	0.00%	7.44E-03	5.74E-03
trimethyl acetic acid	75-98-9	0.04	0.01	102.13	0.047	0.016	6,600	41,184,000	0.00%	0.31	0.33
Toluene Diisocyanate	26471-62-5	0.00	0.00	251	0.004	0.001	6,600	41,184,000	0.00%	0.03	0.02
Unimax SD 200	111-40-0	0.00	0.00	103.2	0.003	0.001	6,600	41,184,000	0.00%	0.02	0.02
xylene, mixed or all isomers, except p- (odor)	1330-20-7	0.33	0.13	106.17	0.388	0.159	6,600	41,184,000	0.00%	2.56	3.27
xylene, p- (odor)	106-42-3	0.34	0.14	106.17	0.405	0.169	6,600	41,184,000	0.00%	2.68	3.47

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Table B-5: PACK'R Attachment I Chemicals

V. Maximum Hourly and Annual VOC Emissions (Attachment I)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
0.52	0.05	6,600	41,184,000	0.00%	3.41	1.06

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Table B-6: PACK'R Attachment II Chemicals

I. Basis

PACK'R loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the PACK'R automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment II chemicals are controlled by an RTO with a destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	8.23	psia
Average Vapor Pressure of product loaded	3.94	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	88.10	lb/lbmol
Average Vapor Molecular weight	88.10	lb/lbmol
Maximum Fill Rate	6,600	gal/hr
Annual Fill Rate	41,184,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Methyl Tert Butyl Ether (MTBE)

$$L_L = 12.46 \times 8.23E+00 \text{ psia} \times \frac{88.10 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 8.066 \frac{\text{lb}}{1000 \text{ gal}}$$

$$6{,}600 \frac{\text{gal}}{\text{hr}} \times \frac{8.066 \text{ lb}}{1000 \text{ gal}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.53 \frac{\text{lb}}{\text{hr}}}$$

III. Annual Emissions Example -Methyl Tert Butyl Ether (MTBE)

$$L_L = 12.46 \times 3.94E+00 \text{ psia} \times \frac{88.10 \text{ lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 4.088 \frac{\text{lb}}{1000 \text{ gal}}$$

$$41{,}184{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{4.088 \text{ lb}}{1000 \text{ gal}} \times \frac{1 \text{ ton}}{2000 \text{ lb}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.84 \frac{\text{ton}}{\text{yr}}}$$

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Table B-6: PACK'R Attachment II Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
acetic acid, glacial (ethanoic acid, water-free acetic acid)	64-19-7	0.60	0.23	60.05	0.40	0.17	6,600	41,184,000	99.00%	0.03	0.03
Acetic anhydride	108-24-7	0.24	0.08	102.09	0.27	0.10	6,600	41,184,000	99.00%	0.02	0.02
Acetone Exempt Solvent (ES)	67-64-1	7.25	3.71	58.08	4.69	2.54	6,600	41,184,000	99.00%	0.31	0.52
Acetonitrile	75-05-8	3.13	1.41	41.05	1.43	0.68	6,600	41,184,000	99.00%	0.09	0.14
Acrylic acid	79-10-7	0.17	0.06	72.06	0.14	0.05	6,600	41,184,000	99.00%	8.95E-03	9.63E-03
Acrylonitrile	107-13-1	4.02	1.80	53.06	2.38	1.12	6,600	41,184,000	99.00%	0.16	0.23
Alkylates	-------	1.55	0.73	100	1.73	0.85	6,600	41,184,000	99.00%	0.11	0.18
Amyl acetate, n- (odor)	628-63-7	1.28	0.72	130.17	1.85	1.10	6,600	41,184,000	99.00%	0.12	0.23
Butyl acetate, n-	123-86-4	0.49	0.21	116.16	0.63	0.28	6,600	41,184,000	99.00%	0.04	0.06
butyl acetate, tert- (TBAC) ES	540-88-5	1.32	0.63	116.16	1.70	0.86	6,600	41,184,000	99.00%	0.11	0.18
Butyl acrylate	141-32-2	0.21	0.08	128.17	0.31	0.12	6,600	41,184,000	99.00%	0.02	0.03
Butyl alcohol, tert- (methyl-2-propanol, 2-)	75-65-0	1.70	0.64	74.12	1.40	0.56	6,600	41,184,000	99.00%	0.09	0.11
Butyl ether	142-96-1	0.26	0.10	130.23	0.37	0.16	6,600	41,184,000	99.00%	0.02	0.03
Butyl Hydroperoxide, tert-	75-91-2	0.44	0.21	90.2	0.45	0.22	6,600	41,184,000	99.00%	0.03	0.05
Cresylate (odor)	1319-77-3	0.65	0.36	108.13	0.78	0.46	6,600	41,184,000	99.00%	0.05	0.10
Cyclohexane	110-82-7	3.25	1.61	84.16	3.04	1.59	6,600	41,184,000	99.00%	0.20	0.33
Cyclohexanone	108-94-1	0.75	0.41	98.15	0.82	0.47	6,600	41,184,000	99.00%	0.05	0.10
Dialkyl phthalates, C6-C11	68515-43-5	0.87	0.70	390	3.78	3.21	6,600	41,184,000	99.00%	0.25	0.66
Diisobutylene	25167-70-8	1.56	0.70	112.22	1.94	0.92	6,600	41,184,000	99.00%	0.13	0.19
DMO	51200-87-4	0.31	0.12	101.15	0.35	0.15	6,600	41,184,000	99.00%	0.02	0.03
DSD 601	287-92-3	2.62	1.38	70.1	2.04	1.14	6,600	41,184,000	99.00%	0.13	0.23
Ethanol	64-17-5	2.32	0.87	46.07	1.19	0.47	6,600	41,184,000	99.00%	0.08	0.10
Ethyl acetate	141-78-6	3.19	1.49	88.11	3.13	1.54	6,600	41,184,000	99.00%	0.21	0.32
Ethyl acrylate (odor)	140-88-5	1.47	0.60	100.11	1.64	0.71	6,600	41,184,000	99.00%	0.11	0.15
Ethylene diamine	107-15-3	0.57	0.22	60.1	0.38	0.15	6,600	41,184,000	99.00%	0.03	0.03
Ethylene glycol monoethyl ether (Cellosolve)	110-80-5	0.23	0.08	90.12	0.23	0.08	6,600	41,184,000	99.00%	0.02	0.02
Formalin (37-50% formaldehyde)	50-00-0	0.13	0.04	30.03	0.04	0.01	6,600	41,184,000	99.00%	2.87E-03	2.69E-03
Formic acid	64-18-6	1.49	0.69	46	0.77	0.37	6,600	41,184,000	99.00%	0.05	0.08
Gasoline	8006-61-9	14.70	11.93	72.15	11.80	10.12	6,600	41,184,000	99.00%	0.78	2.08
Glutaraldehyde (50%) in solution (e.g. UCARCIDE 250)	111-30-8	0.01	0.00	100.12	0.01	0.00	6,600	41,184,000	99.00%	5.88E-04	9.38E-04
Heptane	142-82-5	1.59	0.74	100.21	1.77	0.87	6,600	41,184,000	99.00%	0.12	0.18
Hexamethylenediamine soln.	124-09-4	0.06	0.06	116.21	0.08	0.08	6,600	41,184,000	99.00%	5.12E-03	0.02
Hexane	110-54-3	4.89	2.47	86.17	4.69	2.50	6,600	41,184,000	99.00%	0.31	0.51
Hexanol (odor)	111-27-3	0.74	0.42	102.18	0.85	0.50	6,600	41,184,000	99.00%	0.06	0.10
Hexene (odor)	592-41-6	5.99	3.04	84.16	5.61	3.00	6,600	41,184,000	99.00%	0.37	0.62
Hydrotreated Light Naphtha	64742-49-0	1.59	0.73	70.21	1.24	0.60	6,600	41,184,000	99.00%	0.08	0.12
hydroxy acetic acid (glycolic acid)	79-14-1	0.16	0.16	76.05	0.13	0.14	6,600	41,184,000	99.00%	8.75E-03	0.03
isoamyl alcohol (odor)	123-51-3	0.15	0.05	88.15	0.15	0.05	6,600	41,184,000	99.00%	9.84E-03	9.82E-03
Isoamyl ketone	-------	0.67	0.31	100.16	0.75	0.36	6,600	41,184,000	99.00%	0.05	0.07
Isobutanol	78-83-1	0.51	0.17	74.12	0.42	0.15	6,600	41,184,000	99.00%	0.03	0.03
isobutyric acid (2-methylpropanoic acid)	79-31-2	0.07	0.02	88	0.07	0.02	6,600	41,184,000	99.00%	4.46E-03	4.26E-03
Isobutyladehyde	78-84-2	5.55	2.77	72.1	4.45	2.34	6,600	41,184,000	99.00%	0.29	0.48

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Table B-6: PACK'R Attachment II Chemicals

Isododecane	13475-82-6	0.06	0.02	170.34	0.12	0.05	6,600	41,184,000	99.00%	8.13E-03	9.49E-03
Isooctane	540-84-1	1.60	0.74	114.23	2.03	1.00	6,600	41,184,000	99.00%	0.13	0.20
Isopropyl alcohol	67-63-0	1.78	0.67	60.1	1.19	0.47	6,600	41,184,000	99.00%	0.08	0.10
Mesityl oxide	141-79-7	0.45	0.18	98.2	0.49	0.21	6,600	41,184,000	99.00%	0.03	0.04
Methanol	67-56-1	4.53	1.95	32.04	1.61	0.74	6,600	41,184,000	99.00%	0.11	0.15
methoxydihydropyran (MDP)	4454-05-1	0.39	0.15	114	0.49	0.21	6,600	41,184,000	99.00%	0.03	0.04
Methyl acrylate (odor)	96-33-3	3.06	1.35	86.09	2.93	1.37	6,600	41,184,000	99.00%	0.19	0.28
Methyl amyl alcohol (methyl isobutyl carbinol)	108-11-2	0.27	0.10	102.18	0.31	0.12	6,600	41,184,000	99.00%	0.02	0.03
Methyl ethyl ketone	78-93-3	3.35	1.49	72.11	2.69	1.26	6,600	41,184,000	99.00%	0.18	0.26
Methyl Isobutyl Ketone	108-10-1	1.73	0.74	100.16	1.93	0.88	6,600	41,184,000	99.00%	0.13	0.18
Methyl isopropyl ketone	563-80-4	4.23	2.14	86.15	4.06	2.17	6,600	41,184,000	99.00%	0.27	0.45
Methyl methacrylate	80-62-6	1.43	0.64	100.12	1.59	0.75	6,600	41,184,000	99.00%	0.11	0.15
methyl t-butyl ether (MTBE) (HAP)	1634-04-4	8.23	3.94	88.1	8.07	4.09	6,600	41,184,000	99.00%	0.53	0.84
Nitroethane	79-24-3	0.73	0.31	75.07	0.61	0.27	6,600	41,184,000	99.00%	0.04	0.06
Nitropropane	79-46-9	0.60	0.24	89.1	0.59	0.25	6,600	41,184,000	99.00%	0.04	0.05
Nonene (odor)	124-11-8	0.22	0.08	126.2	0.31	0.12	6,600	41,184,000	99.00%	0.02	0.02
Octene, 1- (odor)	111-66-0	0.66	0.24	112.21	0.82	0.31	6,600	41,184,000	99.00%	0.05	0.06
Pelargonic Acid	112-05-0	0.00	0.00	158.23	0.00	0.00	6,600	41,184,000	99.00%	1.48E-04	1.20E-04
Propanol	71-23-8	0.73	0.26	60.1	0.49	0.18	6,600	41,184,000	99.00%	0.03	0.04
Propionic acid	79-09-4	0.18	0.07	74.08	0.15	0.06	6,600	41,184,000	99.00%	9.69E-03	0.01
Propionaldehyde	123-38-6	9.99	5.01	58.08	6.46	3.42	6,600	41,184,000	99.00%	0.43	0.70
Propyl acetate	109-60-4	1.23	0.51	102.13	1.40	0.62	6,600	41,184,000	99.00%	0.09	0.13
Solane 100-140	64741-84-0	1.64	0.76	100.21	1.83	0.90	6,600	41,184,000	99.00%	0.12	0.18
Styrene	100-42-5	0.25	0.10	104.15	0.29	0.12	6,600	41,184,000	99.00%	0.02	0.02
Toluene	108-88-3	1.01	0.43	92.14	1.03	0.46	6,600	41,184,000	99.00%	0.07	0.09
Turpentine	8006-64-2	0.90	0.64	136.23	1.37	1.02	6,600	41,184,000	99.00%	0.09	0.21
Vinyl acetate	108-05-4	4.02	1.72	86.09	3.85	1.74	6,600	41,184,000	99.00%	0.25	0.36

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Table B-6: PACK'R Attachment II Chemicals

V. Maximum Hourly and Annual VOC Emissions (Attachment II)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
11.80	0.92	6,600	41,184,000	99.00%	0.78	0.19

VI. Maximum Hourly and Annual Exempt Solvent (ES) Emissions (Attachment II)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
4.69	1.70	6,600	41,184,000	99.00%	0.31	0.35

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Table B-7: PACK'R Attachment III Chemicals

I. Basis

PACK'R loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the PACK'R automated high-speed filling machine. The VOC loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment III chemicals are controlled by an RTO followed by a scrubber system with a combined destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	6.34	psia
Average Vapor Pressure of product loaded	3.24	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	119.39	lb/lbmol
Average Vapor Molecular weight	119.39	lb/lbmol
Maximum Fill Rate	6,600	gal/hr
Annual Fill Rate	41,184,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Chloroform

$$L_L = 12.46 \times 6.34E+00 \text{ psia} \times 119.39 \frac{\text{lb}}{\text{lb mole}} \times \frac{0.5}{559.67 \text{ °R}} = 8.428 \frac{\text{lb}}{1000 \text{ gal}}$$

$$6{,}600 \frac{\text{gal}}{\text{hr}} \times \frac{8.428}{1000} \frac{\text{lb}}{\text{gal}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.56 \frac{\text{lb}}{\text{hr}}}$$

III. Annual Emissions Example - Chloroform

$$L_L = 12.46 \times 3.24E+00 \text{ psia} \times 119.39 \frac{\text{lb}}{\text{lb mole}} \times \frac{0.5}{529.67 \text{ °R}} = 4.551 \frac{\text{lb}}{1000 \text{ gal}}$$

$$41{,}184{,}000 \frac{\text{gal}}{\text{yr}} \times \frac{4.551}{1000} \frac{\text{lb}}{\text{gal}} \times \frac{1}{2000} \frac{\text{ton}}{\text{lb}} \times 1.00\% \text{ (100\% - Control Efficiency)} = \boxed{0.94 \frac{\text{ton}}{\text{yr}}}$$

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Table B-7: PACK'R Attachment III Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Allyl chloride	107-05-1	11.03	5.97	76.53	9.39	5.37	6,600	41,184,000	99.00%	0.62	1.11
butyl mercaptan, n- (odor)	109-79-5	1.51	0.69	90.2	1.52	0.73	6,600	41,184,000	99.00%	0.10	0.15
carbon tetrachloride (tetrachloromethane, perchloromethane)	56-23-5	3.77	1.81	153.84	6.46	3.27	6,600	41,184,000	99.00%	0.43	0.67
Chlorinated solvent	-------	1.17	0.79	124.82	1.62	1.16	6,600	41,184,000	99.00%	0.11	0.24
chloroacetylchloride	79-04-9	0.96	0.62	113	1.21	0.83	6,600	41,184,000	99.00%	0.08	0.17
Chlorobenzene	108-90-7	0.49	0.19	112.56	0.62	0.26	6,600	41,184,000	99.00%	0.04	0.05
chloroform (trichloromethane)	67-66-3	6.34	3.24	119.39	8.43	4.55	6,600	41,184,000	99.00%	0.56	0.94
cyclohexylmercaptan	1569-69-3	0.20	0.08	116.23	0.25	0.11	6,600	41,184,000	99.00%	0.02	0.02
Dichloroethane, 1,2- (Ethylene Dichloride)	107-06-2	2.72	1.25	98.96	2.99	1.45	6,600	41,184,000	99.00%	0.20	0.30
Dichloroethylene, 1,2- (acetylene dichloride)	540-59-0	8.27	3.64	97	8.93	4.15	6,600	41,184,000	99.00%	0.59	0.85
dichloromethane (DCM or methylene chloride) ES	75-09-2	13.34	6.70	84.93	12.61	6.69	6,600	41,184,000	99.00%	0.83	1.38
Epichlorohydrin	106-89-8	0.65	0.26	92.53	0.67	0.28	6,600	41,184,000	99.00%	0.04	0.06
1,2-ethanedithiol (ethylenedimercaptan) (odor)	540-63-6	0.20	0.07	94.2	0.21	0.07	6,600	41,184,000	99.00%	0.01	0.02
heptylmercaptan (odor)	1639-09-4	0.06	0.02	132.27	0.09	0.03	6,600	41,184,000	99.00%	5.98E-03	6.05E-03
hexyl mercaptan	111-31-9	0.19	0.07	118.24	0.25	0.09	6,600	41,184,000	99.00%	0.02	0.02
nonyl mercaptan, tertiary- (as n-nonyl mercaptan)	25360-10-5	0.10	0.10	160.3	0.18	0.19	6,600	41,184,000	99.00%	0.01	0.04
octadecyl mercaptan (stearyl mercaptan)	2885-00-9	0.21	0.21	286.56	0.68	0.72	6,600	41,184,000	99.00%	0.04	0.15
octyl mercaptan	111-88-6	0.04	0.01	146.29	0.06	0.02	6,600	41,184,000	99.00%	4.26E-03	4.30E-03
perchloroethylene (tetrachloroethylene)	127-18-4	0.73	0.43	165.83	1.35	0.84	6,600	41,184,000	99.00%	0.09	0.17
perchloromethyl mercaptan	594-42-3	0.24	0.09	185.87	0.50	0.19	6,600	41,184,000	99.00%	0.03	0.04
propyl mercaptan, n- (odor)	107-03-9	5.07	2.51	76.16	4.30	2.25	6,600	41,184,000	99.00%	0.28	0.46
Propylene dichloride (odor)	78-87-5	1.25	0.69	112.99	1.57	0.92	6,600	41,184,000	99.00%	0.10	0.19
phenyl mercaptan (odor)	108-98-5	0.07	0.02	110.18	0.09	0.03	6,600	41,184,000	99.00%	5.99E-03	5.87E-03
Tetrahydrofuran (THF)	109-99-9	5.26	2.57	72.1	4.22	2.18	6,600	41,184,000	99.00%	0.28	0.45
Trichloroethane, 1,1,1- (methyl chloroform) ES	71-55-6	4.15	2.03	133.41	6.17	3.18	6,600	41,184,000	99.00%	0.41	0.66
trichloroethylene	79-01-6	2.61	1.20	131.39	3.82	1.86	6,600	41,184,000	99.00%	0.25	0.38
trifluoroacetic acid	76-05-1	3.74	1.69	114.02	4.74	2.26	6,600	41,184,000	99.00%	0.31	0.47

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Table B-7: PACK'R Attachment III Chemicals

V. Maximum Hourly and Annual VOC Emissions (Attachment III)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
12.61	1.62	6,600	41,184,000	99.00%	0.83	0.33

VI. Maximum Hourly and Annual Exempt Solvent (ES) Emissions (Attachment III)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
12.61	4.94	6,600	41,184,000	99.00%	0.83	1.02

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Table B-8: PACK'R Attachment IV Chemicals

I. Basis

PACK'R loading loss emissions occur at the Third Coast site when organic liquid chemical products are packaged into drums or totes using the PACK'R automated high-speed filling machine. The loading emissions were calculated using equations and factors from EPA Document AP-42, Fifth Edition, Chapter 5, Section 5.2. The loading operations occur via submerged loading. Short-term emissions were based on the maximum hourly filling rate. Annual emissions were based on the annual amount of liquids loaded and the average annual loading losses. Emissions from Attachment IV chemicals are controlled by a scrubber system with a destruction efficiency of 99-percent.

Maximum Vapor Pressure of product loaded	7.93	psia
Average Vapor Pressure of product loaded	3.29	psia
Maximum Temp of product loaded	559.67	°R
Average Temp of product loaded	529.67	°R
Maximum Molecular weight	36.46	lb/lbmol
Average Vapor Molecular weight	36.46	lb/lbmol
Maximum Fill Rate	6,600	gal/hr
Annual Fill Rate	41,184,000	gal/yr
Method of loading	Submerged loading: dedicated normal service	
Saturation Factor (S)	0.5	

$$LL = \frac{12.46 * SPpM}{T}$$

Where:

LL : loading loss, lb/1000 gallons of liquid loaded
S : saturation factor from Table 5.2-1, 0.6
Pp : vapor pressure of liquid loaded, psia
M : molecular weight of vapors, lb/lbmol
T : temperature of bulk liquid loaded, R

II. Short Term Emissions Example - Hydrochloric acid

L_L= 12.46 × 7.93E+00 psia × 36.46 lb/lb mole × 0.5/559.67 °R = 3.218 lb/1000 gal

6,600 gal/hr × 3.218 lb/1000 gal × 1.00% 100% - Control Efficiency = **0.21 lb/hr**

III. Annual Emissions Example - Hydrochloric acid

L_L= 12.46 × 3.29E+00 psia × 36.46 lb/lb mole × 0.5/529.67 °R = 1.410 lb/1000 gal

41,184,000 gal/yr × 1.410/1000 lb/gal × 1/2000 ton/lb × 1.00% 100% - Control Efficiency = **0.29 ton/yr**

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Table B-8: PACK'R Attachment IV Chemicals

IV. Maximum Speciated Emissions

Product	CAS No.	Maximum Vapor Pressure (psia)	Average Vapor Pressure (psia)	Molecular Weight (lb/lb-mole)	Hourly Loading Loss Factor (lb/1000 gal)	Annual Loading Loss Factor (lb/1000 gal)	Hourly Fill Rate (gal/hr)	Annual Loading (gal/yr)	Control Efficiency	Hourly Loading Emissions (lb/hr)	Annual Loading Emissions (tpy)
Hydrochloric Acid (HCl)	7647-01-0	7.929	3.287	36.46	3.22	1.41	6,600	41,184,000	99.00%	0.21	0.29

V. Maximum Hourly and Annual VOC Emissions (Attachment IV)

Maximum Loading Loss (lb/1000 gal)	Average Loading Loss (lb/1000 gal)	Maximum Hourly Throughput (gal/hr)	Annual Throughput (gal/yr)	Control Efficiency (%)	Maximum Hourly Emissions (lb/hr)	Annual Emissions (tpy)
3.22	1.41	6,600	41,184,000	99.00%	0.21	0.29

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Table B-9: RTO Emissions

I. Basis

Thermal products of combustion from the RTO were calculated using the total speciated maximum flow to the oxidizer from the controlled loading operations, along with the heat of combustion for each specie to estimate the maximum total heat rating. In addition to the controlled vapors, an additional supplemental natural gas stream is added to the thermal oxidizer to ensure efficient combustion. The total heat rating for the controlled loading vapor stream and the supplemental natural gas streams were then multiplied by the appropriate emission factors to calculate the formation of products of combustion. Emission factors from US EPA AP-4 Chapter 1.4 Table 1.4-2 was utilized to calculate combustion emissions from the controlled loading operations and supplemental natural gas stream. Additionally, some of the controlled vapors contain sulfur, and therefore the amount of SO2 formation was calculated stoichiometrically, assuming each molecule of sulfur in the controlled vapors formed one molecule of SO2.

I. Thermal Oxidizer Calculations

Destruction Efficiency Calculations						
Source	**Constituent**	**Max Hourly Inlet Mass Flow**	**Annual Inlet Mass Flow**	**Control Efficiency**	**Short-Term Emission Rate**	**Annual Emission Rate**
		(lb/hr)	**(tpy)**	**(%)**	**(lb/hr)**	**tpy**
Feige Filler	Combustion Vapors	4.16E+01	1.46E+02	99.00%	4.16E-01	1.46E+00
PACK'R Filler	Combustion Vapors	8.32E+01	2.08E+02	99.00%	8.32E-01	2.08E+00

II. Products of Combustion

Heat of Combustion								
Source	**Combusted Species**	**Gross Heating Value**	**Combustion Rate**		**Heat Rating**		**Total Heat Rating**	
		(btu/lb)	**(lb/hr)**	**(tpy)**	**(MMBtu/hr)**	**(MMBtu/yr)**	**(MMBtu/hr)**	**(MMBtu/yr)**
Feige Filler	Combustion Vapors	20,000	4.16E+01	1.46E+02	8.32E-01	5.85E+03	0.83	5,853.76
PACK'R Filler	Combustion Vapors	20,000	8.32E+01	2.08E+02	1.66E+00	8.34E+03	1.66	8,339.61
Supplemental Natural Gas	Natural Gas	22,453	--	--	3.00E+00	2.63E+04	3.00	26,280.00

A conservative heating value of 20,000 Btu/lb used for waste stream species. The heating value for natural gas taken from http://cta.ornl.gov/bedb/appendix_a/Lower_and_Higher_Heating_Values_of_Gas_Liquid_and_Solid_Fuels.pdf.

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Table B-9: RTO Emissions

Products of Combustion - Waste Stream	Emission Factor (lb/MMBtu)	Project Emissions	
		Emission Rate	
		lb/hr	tpy
NO_X	0.0980	0.24	0.70
Carbon Monoxide	0.0824	0.21	0.58
$PM/PM_{10}/PM_{2.5}$	0.0075	0.02	0.053

NO_X, CO, and $PM/PM_{10}/PM_{2.5}$ emission factors were obtained from AP-42 Chapter 1.4 Table 1.4-2 for small boilers (<100 MMBtu/hr) Note that SO_2 from combustion based on sulfur in the combusted gases is calculated stoichiometrically below.

Products of Combustion - Supplemental Natural Gas	Emission Factor (lb/MMBtu)	Project Emissions	
		Emission Rate	
		lb/hr	tpy
NO_X	0.0980	0.29	1.29
Carbon Monoxide	0.0824	0.25	1.08
VOC	0.0054	0.016	0.071
SO_2	0.0006	0.0018	7.73E-03
$PM/PM_{10}/PM_{2.5}$	0.0075	0.022	0.098

NO_X, CO, VOC, SO_2, and $PM/PM_{10}/PM_{2.5}$ emission factors were obtained from AP-42 Chapter 1.4 Table 1.4-2 for small boilers (<100 MMBtu/hr).

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Table B-9: RTO Emissions

III. SO_2 Generated from Combustion of Waste Stream

Compound	Max Hourly Inlet Mass Flow (lb/hr)	Annual Inlet Mass Flow (tpy)	Molecular Weight (lb/lb-mol)	Sulfur Weight (lb/lb-mol)	Control Efficiency (%)	SO_2 Emission Rate (lb/hr)	SO_2 Emission Rate (tpy)
1,2-ethanedithiol (ethylenedimercaptan) (odor)	2.06E+00	2.62E+00	94.2	32.07	99%	0.01	0.02
butyl mercaptan, n- (odor)	1.50E+01	2.55E+01	90.2	32.07	99%	0.11	0.18
cyclohexylmercaptan	2.51E+00	3.71E+00	116.23	32.07	99%	0.01	0.02
heptylmercaptan (odor)	8.96E-01	1.03E+00	132.27	32.07	99%	0.00	0.00
hexyl mercaptan	2.51E+00	3.27E+00	118.24	32.07	99%	0.01	0.02
isopropyl mercaptan	5.32E+00	5.90E+01	76.16	32.07	99%	0.04	0.50
nonyl mercaptan, tertiary- (as n-nonyl mercaptan)	1.77E+00	6.61E+00	160.3	32.07	99%	0.01	0.03
octadecyl mercaptan (stearyl mercaptan)	6.72E+00	2.51E+01	286.56	32.07	99%	0.02	0.06
octyl mercaptan	6.39E-01	7.33E-01	146.29	32.07	99%	0.00	0.00
phenyl mercaptan (odor)	8.99E-01	9.99E-01	110.18	32.07	99%	0.01	0.01
propyl mercaptan, n- (odor)	4.26E+01	7.87E+01	76.16	32.07	99%	0.36	0.66

IV. Emission Totals

Pollutant	Total RTO Emissions (EPN RTO-SCRUB)	
	lb/hr	tpy
NO_X	0.54	1.98
CO	0.45	1.67
VOC	0.02	0.07
SO_2	0.36	0.67
$PM/PM_{10}/PM_{2.5}$	0.04	0.15

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Table B-10: Fugitives

I. Basis

This represents all fugitive components associated with the automated high-speed filling machines for liquid loading into drum and totes, which are vented to the RTO and two-stage quench and scrubber system. Emission factors utilized were the SOCMI w/o ethylene factors from *Air Permit Technical Guidance for Chemical Sources: Equipment Leak Fugitives* . Third Coast has an Audio/Visual/Olfactory monitoring program and the appropriate control factor has been applied.

II. Emissions Estimation - Equipment Leak Fugitives

Fugitives Count and Total Emissions						
Equipment Type	**Service**	**Component Count**	**Emission Factor[1] (lb/hr/component)**	**Control Efficiency[2]**	**Controlled Emissions**	
					Hourly (lb/hr)	**Annual (tpy)**
Flange & Connectors	Gas/Vapor	0	0.0029	97%	0.0000	0.0000
	Light Liquid	20	0.0005	97%	0.0003	0.0013
	Heavy Liquid	0	0.00007	97%	0.0000	0.0000
Valves	Gas/Vapor	0	0.0089	97%	0.0000	0.0000
	Light Liquid	10	0.0035	97%	0.0011	0.0046
	Heavy Liquid	0	0.0007	97%	0.0000	0.0000
Sampling Connections	All	0	0.033	0%	0.0000	0.0000
Relief Valves [2]	Gas/Vapor	0	0.2293	100%	0.0000	0.0000
Open Ended Lines	All	0	0.004	100%	0.0000	0.0000
Drains	All	0	0.004	100%	0.0000	0.0000
Pump Seals	Light Liquid	2	0.0386	93%	0.0054	0.0237
	Heavy Liquid	0	0.0161	93%	0.0000	0.0000
Compressor Seals	All	0	0.5027	95%	0.0000	0.0000
				TOTAL (EPN: FUG)	**0.0068**	**0.0296**

1 Emission factors utilized are for the SOCMI without ethylene program specified in "Air Permit Technical Guidance for Chemical Sources: Fugitive Guidance" dated June 2018.

2 Control efficiency applied is for AVO LDAR program specified in "Air Permit Technical Guidance for Chemical Sources: Fugitive Guidance" dated June 2018.

Third Coast Packaging, Inc.
NSR Permit 92403 Renewal and Amendment Application
October 2020

Table B-10: Fugitives

Sample Calculations - Flange & Connectors in Light Liquid Service

Maximum Hourly Emissions, lb/hr = (Number of Components) * (Emission Factor, lb/hr/component) * (Control Credit)

$$\text{lb/hr} = \frac{20 \text{ components}}{} \left| \frac{0.0005 \text{ lb/hr}}{\text{component}} \right| \frac{1 - 97\%}{} = 0.0003 \text{ lb/hr}$$

Annual Emissions, tpy= (Number of Components) * (EF, lb/hr/component) * (Number of Hours/Year) * (Control Credit) * (1 ton per 2,000 lbs)

$$\text{tpy} = \frac{20 \text{ components}}{} \left| \frac{0.0005 \text{ lb/hr}}{\text{component}} \right| \frac{8{,}760 \text{ hours}}{\text{year}} \left| \frac{1 - 97\%}{} \right| \frac{1 \text{ ton}}{2{,}000 \text{ lb}} = 0.0013 \text{ tpy}$$

Appendix C
Impacts Analysis - EMEW

- TCEQ Electronic Modeling Evaluation Workbook (EMEW) Excel Workbook for non-SCREEN3
- Modeling Memo and Attachments
- Electronic versions of all input and output files for each dispersion modeling run, including data, grid, plot files, meteorological data files and plot plans with downwash structures will be submitted electronically to the TCEQ assigned permit reviewer using TCEQ's FTP site

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Date: October 2020
Permit #: 92403
Company Name: Third Coast Packaging, Inc.

Acknowledgement:	Select from the drop down:
I acknowledge that I am submitting an authorized TCEQ Electronic Modeling Evaluation Workbook and any necessary attachments. Except for inputting the requested data, I have not changed the TCEQ Electronic Modeling Evaluation Workbook in any way, including but not limited to changing formulas, formatting, content, or protections.	I agree

Administrative Information:

Data Type:	Facility Information:
Project Number (6 digits):	
Permit Number:	92403
Regulated Entity ID (9 digits):	102419330
Facility Name:	Third Coast Pearland Facility
Facility Address:	1871 Mykawa Rd
Facility County (select one):	Brazoria
Company Name:	Third Coast Packaging, Inc.
Company Contact Name:	Mr. Edgardo Cruz
Company Contact Number:	(346) 207-4705
Company Contact Email:	ecruz@thirdcoast.com
Modeling Company Name, as applicable:	TRC Environmental Corporation
Modeling Contact Name:	Elizabeth Stanko
Modeling Contact Number:	713-244-1039
Modeling Contact Email:	estanko@trccompanies.com
New/Existing Site (select one):	Existing
Modeling Date (MM/DD/YYYY):	9/25/2020
Datum Used (select one):	NAD 83
UTM Zone (select one):	15

Sheet Instructions: Indicate in the Table of Contents which sections are applicable and included for this modeling demonstration. Select "X" from the drop down if the item below is included in the workbook. Note: This workbook is only for the following air dispersion models: AERSCREEN, ISC/ISCPrime, and/or AERMOD. If SCREEN3 is used, please use the separate Electronic Modeling Evaluation Workbook (EMEW) for SCREEN3 workbook.

Table of Contents:

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Company Name: Third Coast Packaging, Inc.

14	Modeling Scenarios	X
15	Monitor Calculations	
16	Background Justification	
17	Secondary Formation of PM2.5	X
18	NAAQS/State Property Line (SPL) Modeling Results	X
19	Unit Impact Multipliers	X
20	Health Effects Modeling Results	X
21	Modeling File Names	X
22	Speciated Chemicals	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

General

Company Name: Third Coast Packaging, Inc.

Included Attachments Instructions: The following are attachments that must be included with any modeling analysis. If providing the plot plan and area map with the permit application, ensure there is also a copy with the EMEW. The copy can be electronic.	**Select an X from the dropdown menu if included:**
Plot Plan: Instructions: Mark all that apply in the attached plot plan. For larger properties or dense source areas, provide multiple zoomed in plot plans that are legible.	
Property/Fence Lines all visible and marked.	X
North arrow included.	X
Clearly marked scale.	X
All sources and buildings are clearly labeled.	X
Area Map:	
Instructions: Mark all that apply in the attached area map.	
Annotate schools within 3,000ft of source's nearest property line.	X
All property lines are included.	X
Non-industrial receptors are identified.	X
Additional Attachments (as applicable): *Note: These are just a few examples of attachments that may need to be included. There may be others depending on the scope of the modeling analysis.*	**Select an X from the dropdown menu if included:**
Processed Met Data Information	
Excel spreadsheet of processed meteorology data.	Choose an item
Meteorological Files (all input and outputs).	Choose an item
Source Group Descriptions	
Description of modeling source groups (could be in a tabulated format).	X
Modeling Techniques and Scenarios *Provide all justification and discussion on modeling scenarios used for the modeling analyses. The following boxes are examples of approaches that should be provided but is not all inclusive.*	
Discussion on modeling techniques not discussed in workbook.	X
Justification for exceedance refinements, as applicable.	Choose an item
Discussion and images for worst-case determination, as applicable.	Choose an item
Single Property Line Designation, as applicable	
Include Agreement, Order, and map defining each petitioner.	Choose an item
Post Processing using Unit Impact Multipliers (UIMs)	
Include documentation on any calculations used with the UIMs (i.e., Step 3 of the MERA).	X
Tier 3 NO_2 analysis *If OLM or PVMRM are used, provide all justification and documentation on using this approach.*	
Description of model setup.	Choose an item
Description and justification of model options selected (i.e., NO_2 to NO_x in-stack ratios).	Choose an item
Other Attachments *Provide a list in the box below of additional attachments being provided that are not listed above:*	
Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations and emission rates (Excel includes Table A-10 EMEW AERMOD Model ID Cross Reference Table) Modeling Memo explaining UIM tables Population Estimate for Urban Option	X

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

I. Project Information

A. Project Overview: In the box below, give a brief Project Overview. To type or insert text in box, double click in the box below. *Please limit your response to 2000 characters.*

Project is to Renew NSR Permit 92403, and a concurrent amendment is being submitted to consolidate by incorporation PBR Registration No. 159633 into the NSR permit and update chemical attachment lists and associated emission rate calculations.

Modeling performed for PBR emissions that are being consolidated into the NSR permit, as well as updated emissions calculations. Project modeling consists of two emission sources; a regenerative thermal oxidizer (RTO) and equipment leak fugitives. Three non-project (on-property) sources were included in the site-wide modeling.

No new sources are being authorized with this project and there are no new chemical constituents being authorized.

II. Air Dispersion Modeling Preliminary Information

Instructions: Fill in the information below based on your modeling setup. The selections chosen in this sheet will carry throughout the sheet and workbook. Based on selections below, only portions of the sheet and workbook will be available. Therefore, it is vital the sheet and workbook are filled out in order, do NOT skip around.

For larger text boxes, double click to type or insert text.

A. Type of Model Used: *Select "X" in all that apply*

	AERSCREEN	X	AERMOD
19191	Enter in all applicable Model Version(s).		

B. Building Downwash

Yes	Is downwash applicable? *(Select "Yes" or "No")*
4274	Enter BPIP version (AERMOD and ISCPrime only).

C. Type of Analyses: (Select "X" in all that apply)
*PSD projects should submit a protocol and not utilize this form.

X	Minor NSR NAAQS	X	State Property Line
X	Health Effects		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Company Name: Third Coast Packaging, Inc.

D. Constituents Evaluating: (Select "X" in all that apply)

NAAQS: List all pollutants that require a modeling review. *(Select "X" in all that apply)*

X	SO_2	X	PM_{10}
X	CO	X	$PM_{2.5}$
	Pb	X	NO_2

Both	Identify which averaging periods are being evaluated for NO_2.
Tier 1: Full Conversion	Identify the 1-hr NO_2 tier used for the AERMOD or AERSCREEN analyses.
Tier 1: Full Conversion	Identify the annual NO_2 tier used for the AERMOD or AERSCREEN analyses.

State Property Line: List all pollutants that require a modeling review. *(Select "X" in all that apply)*

	H_2S	X	SO_2
	H_2SO_4		

Health Effects: Fill in the Speciated Emissions sheet with all applicable pollutants, CAS numbers, and ESLs.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Company Name: Third Coast Packaging, Inc.

E. Dispersion Options: *If "Urban" has been selected and this project is using AERMOD or AERSCREEN, include the population used. Select "X" in the box to select an option.*

X	Urban	713044	Population Used

Provide any additional justification on the dispersion option selected above:

According to the AERMOD implementation guide, the urban option can be used to "To account for the dispersive nature of the "convective-like" boundary layer that forms during nighttime conditions due to the urban heat island effect." The Third Coast site is located in northern Brazoria County and is influenced by the urban heat island effect. According to the AERMOD implementation guide, because the urban heat island effect is regional in character and not a localized phenomenon, an argument stating that the facility is too close to rural areas would be invalidated.

Further, NWS meteorological data was utilized for the modeling analysis and the AERMOD Implementation guide also states that, "For urban applications using representative NWS meteorological data the AERMOD urban option (URBANOPT) should be selected (EPA, 2018b), regardless of whether the NWS site is located in a nearby rural or an urban setting. This is due to the fact that the limited surface meteorological measurements available from NWS stations will not account for the enhanced turbulence or other meteorological characteristics of the urban boundary layer included in the AERMOD urban algorithms."

The population utilized was the population within the receptor domain and was obtained using the Missouri Census Data Center Circular Area Profiles (CAPS) version 10C.

F. Determination of Surface Roughness: *If AERSCREEN or AERMOD is used, fill out the section below.*

Select basis for surface roughness:	AERSURFACE

Select "X" in one of the three surface roughness categories:

	Low	X	Medium
			High

If you are using AERSURFACE, please complete the following section:

20060	AERSURFACE Version Number		
278028	Center UTM Easting (meters)	3273918	Center UTM Northing (meters)
1	Study Radius (km)		
No	Airport? (Select Yes or No)		
No	Continuous Snow Cover (Select Yes or No)		
Average	Surface Moisture (Select Wet, Dry, or Average)		
No	Arid Region? (Select Yes or No)		
Default	Month/Season Assignment		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Company Name: Third Coast Packaging, Inc.

G. Meteorological Data:

If AERMOD and/or ISC/ISCPrime are selected, please complete the following section:

12976	Surface Station
3937	Upper Air Station
Meters (m)	Profile Base Elevation (AERMOD only)
19191	AERMET Version Number

Yes	Was TCEQ pre-processed data used?	1 Year	Years used

Please enter the year(s) selected for this meteorological data:

2016	1 Year

Provide any other justification for Meteorological Data, as applicable.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Model Options

Company Name: Third Coast Packaging, Inc.

H. Receptor Grid:

For AERMOD or ISC/ISCPrime, fill in the following information on your modeled receptor grid. Note: Receptor grid resolution (tight, fine, medium, coarse) are based on recommended receptor grid spacing per the AQMG, if something outside of this is used, fully describe it below.

25	Meters (m)	Tight Receptor Spacing
250	Meters (m)	Tight Receptor Distance
100	Meters (m)	Fine Receptor Spacing
1000	Meters (m)	Fine Receptor Distance
500	Meters (m)	Medium Receptor Spacing
5000	Meters (m)	Medium Receptor Distance
1000	Meters (m)	Coarse Receptor Spacing
10000	Meters (m)	Coarse Receptor Distance

Describe any other receptor grid designs (over water, GLC_{ni}, SPLD etc.):

I. Terrain:

X	Elevated
18081	AERMAP Version.

For additional justification on terrain selection, fill in the box below:

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Building	MAIN		1		7.62	
Building	PREPOLY		1		6.096	
Building	OFFICE		1		4.572	
Building	LAB		1		4.572	
Building	PUMPS		1		7.62	
Building	P_TNK353		1		3.66	
Building	P_TNK354		1		3.66	
Building	P_TNK355		1		3.66	
Building	P_TNK356		1		3.66	
Building	P_TNK357		1		3.66	
Building	P_TNK358		1		3.66	
Building	P_TNK359		1		3.66	
Building	P_TNK360		1		3.66	
Building	UTILITY		1		7.32	
Building	RAW_STG		1		7.32	
Building	Boilers		1		4.2672	
Building	Lab2		1		6.7056	
Tank	T000	3.66		14.63		
Tank	T001	2.44		3.66		
Tank	T002	3.66		7.62		
Tank	T03_04	3.66		2.13		
Tank	T005	3.05		7.62		
Tank	T006	3.66		7.62		
Tank	T007	3.66		7.62		
Tank	T008	3.66		10.97		
Tank	T009	3.66		10.97		
Tank	T010	3.66		10.97		
Tank	T011	3.66		12.19		
Tank	T012	3.66		12.19		
Tank	T013	3.66		10.97		
Tank	T014	4.72		10.97		
Tank	T015	4.72		10.97		
Tank	T016	4.72		10.97		
Tank	T017	4.72		10.97		
Tank	T018	4.72		10.97		
Tank	T019	3.66		12.19		
Tank	T020	3.66		12.19		
Tank	T021	3.66		12.19		
Tank	T022	3.66		12.19		
Tank	T023	3.66		10.97		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Tank	T024	3.66		10.97		
Tank	T025	3.05		3.05		
Tank	T026	2.44		4.57		
Tank	T027	3.66		7.62		
Tank	T028	3.05		4.57		
Tank	T029	3.05		4.57		
Tank	T030	2.44		4.88		
Tank	T031	3.66		15.24		
Tank	T032	3.05		3.05		
Tank	T033	3.05		8.53		
Tank	T034	3.05		8.53		
Tank	T035	3.66		10.97		
Tank	T036	3.66		10.97		
Tank	T037	3.66		10.97		
Tank	T038	3.66		10.97		
Tank	T039	3.66		10.97		
Tank	T040	3.66		10.97		
Tank	T041	3.66		10.97		
Tank	T042	3.66		10.97		
Tank	T043	3.66		10.97		
Tank	T044	3.05		5.18		
Tank	T045	2.74		4.75		
Tank	T046	3.05		8.53		
Tank	T047	2.13		2.13		
Tank	T048	2.13		2.13		
Tank	T049	2.44		3.66		
Tank	T050	2.44		4.88		
Tank	T051	2.44		4.88		
Tank	T052	3.05		5.18		
Tank	T053	3.05		4.88		
Tank	T054	3.66		10.97		
Tank	T055	3.66		10.97		
Tank	T056	3.66		10.97		
Tank	T057	3.66		10.97		
Tank	T058	4.88		12.8		
Tank	T059	4.88		12.8		
Tank	T060	4.88		12.8		
Tank	T061	4.88		12.8		
Tank	T062	4.88		12.8		
Tank	T063	3.66		15.24		
Tank	T064	3.66		15.24		
Tank	T065	4.88		15.24		
Tank	T066	3.66		15.24		
Tank	T067	3.66		15.24		
Tank	T068	3.66		15.24		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Tank	T069	3.66		15.24		
Tank	T070	3.66		15.24		
Tank	T071	3.66		15.24		
Tank	T072	3.66		15.24		
Tank	T073	3.66		15.24		
Tank	T074	3.66		15.24		
Tank	T075	3.66		15.24		
Tank	T076	3.66		15.24		
Tank	T077	3.66		15.24		
Tank	T078	3.66		15.24		
Tank	T079	3.66		15.24		
Tank	T080	3.66		15.24		
Tank	T081	3.66		15.24		
Tank	T082	3.66		15.24		
Tank	T083	3.66		15.24		
Tank	T084	4.57		15.24		
Tank	T085	2.44		3.66		
Tank	T086	2.44		3.66		
Tank	T087	2.44		3.66		
Tank	T100	3.66		15.24		
Tank	T101	5.49		15.24		
Tank	T102	3.66		15.24		
Tank	T103	5.49		15.24		
Tank	T104	3.66		15.24		
Tank	T105	5.49		15.24		
Tank	T106	3.66		15.24		
Tank	T107	3.66		15.24		
Tank	T108	3.66		15.24		
Tank	T109	4.88		15.24		
Tank	T110	3.66		15.24		
Tank	T111	3.66		15.24		
Tank	T112	3.35		4.27		
Tank	T113	4.88		19.51		
Tank	T114	3.66		19.51		
Tank	T115	4.88		19.51		
Tank	T116	3.66		19.51		
Tank	T117	4.88		19.51		
Tank	T118	3.66		19.51		
Tank	T119	4.88		19.51		
Tank	T120	3.66		19.51		
Tank	T121	4.88		19.51		
Tank	T122	3.66		5.49		
Tank	T123	3.66		19.51		
Tank	T124	3.66		19.51		
Tank	T125	4.88		19.51		
Tank	T126	4.88		19.51		
Tank	T127	4.88		19.51		
Tank	T128	4.88		19.51		
Tank	T129	4.88		19.51		
Tank	T130	4.88		19.51		
Tank	T131	4.88		19.51		
Tank	T132	4.88		19.51		
Tank	T133	3.66		19.51		
Tank	T134	4.88		19.51		
Tank	T135	3.66		19.51		
Tank	T136	4.88		19.51		
Tank	T137	3.66		19.51		
Tank	T138	3.66		19.51		
Tank	T139	3.66		19.51		
Tank	T140	3.66		19.51		
Tank	T141	3.66		19.51		
Tank	T142	3.66		19.51		

Texas Commission on Environmental Quality

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Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Tank	T143	3.66		19.51		
Tank	T144	4.88		19.51		
Tank	T145	3.66		19.51		
Tank	T146	4.88		19.51		
Tank	T147	2.44		19.51		
Tank	T148	4.88		19.51		
Tank	T149	4.88		19.51		
Tank	T150	3.66		19.51		
Tank	T151	3.66		19.51		
Tank	T152	3.66		19.51		
Tank	T153	3.66		19.51		
Tank	T154	3.66		19.51		
Tank	T155	4.88		19.51		
Tank	T156	4.88		19.51		
Tank	T157	4.88		19.51		
Tank	T158	4.88		19.51		
Tank	T159	4.88		19.51		
Tank	T160	4.88		19.51		
Tank	T162	3.6576		19.5072		
Tank	T163	3.6576		19.5072		
Tank	T164	3.6576		19.5072		
Tank	T165	3.6576		19.5072		
Tank	T188	3.048		7.62		
Tank	T189	3.048		7.62		
Tank	T190	3.048		7.62		
Tank	T191	3.048		7.62		
Tank	T192	3.048		7.62		
Tank	T194	3.048		7.62		
Tank	T195	3.048		7.62		
Tank	T196	3.048		7.62		
Tank	T197	3.6576		7.62		
Tank	T198	3.6576		7.62		
Tank	T199	3.6576		7.62		
Tank	T200	3.6576		7.62		
Tank	T201	3.6576		7.62		
Tank	T202	3.6576		7.62		
Tank	T203	3.6576		7.62		
Tank	T204	3.6576		7.62		
Tank	T205	3.6576		7.62		
Tank	T206	3.6576		7.62		
Tank	T207	3.6576		7.62		
Tank	T208	3.6576		7.62		
Tank	T209	3.6576		12.192		
Tank	T210	3.6576		12.192		
Tank	T211	3.6576		12.192		
Tank	T212	3.6576		12.192		
Tank	T213	3.6576		12.192		
Tank	T214	3.6576		12.192		
Tank	T215	3.6576		12.192		
Tank	T216	3.6576		12.192		
Tank	T217	3.6576		12.192		
Tank	T218	3.6576		7.62		
Tank	T219	3.6576		7.62		
Tank	T220	3.6576		7.62		
Tank	T221	4.8768		19.5072		
Tank	T222	4.8768		19.5072		
Tank	T223	4.8768		19.5072		
Tank	T224	4.8768		19.5072		
Tank	T225	4.8768		19.5072		
Tank	T226	4.8768		19.5072		
Tank	T227	4.8768		19.5072		
Tank	T228	4.8768		19.5072		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Tank	T229	4.8768		19.5072		
Tank	T230	4.8768		19.5072		
Tank	T231	4.8768		19.5072		
Tank	T232	4.8768		19.5072		
Tank	T233	4.8768		19.5072		
Tank	T234	4.8768		19.5072		
Tank	T235	4.8768		19.5072		
Tank	T236	4.8768		19.5072		
Tank	T237	3.6576		19.5072		
Tank	T238	3.6576		19.5072		
Tank	T239	3.6576		19.5072		
Tank	T240	4.8768		19.5072		
Tank	T241	4.8768		19.5072		
Tank	T242	4.8768		19.5072		
Tank	T243	4.8768		19.5072		
Tank	T244	3.6576		19.5072		
Tank	T245	3.6576		19.5072		
Tank	T246	3.6576		19.5072		
Tank	T247	4.8768		19.5072		
Tank	T248	4.8768		19.5072		
Tank	T249	4.8768		19.5072		
Tank	T250	4.8768		19.5072		
Tank	T251	3.6576		19.5072		
Tank	T252	3.6576		19.5072		
Tank	T253	3.6576		19.5072		
Tank	T255	4.8768		19.5072		
Tank	T256	4.8768		19.5072		
Tank	T257	4.8768		19.5072		
Tank	T258	3.6576		19.5072		
Tank	T259	3.6576		19.5072		
Tank	T260	3.6576		19.5072		
Tank	T261	3.6576		19.5072		
Tank	T262	3.6576		19.5072		
Tank	T263	3.6576		19.5072		
Tank	T284	3.6576		7.62		
Tank	T285	3.6576		7.62		
Tank	T286	3.6576		7.62		
Tank	T287	3.6576		7.62		
Tank	T288	3.6576		7.62		
Tank	T289	3.6576		7.62		
Tank	T290	3.6576		7.62		
Tank	T291	3.6576		7.62		
Tank	T292	3.6576		7.62		
Tank	T293	3.6576		7.62		
Tank	T294	3.6576		7.62		
Tank	T295	3.6576		7.62		
Tank	T296	3.6576		7.62		
Tank	T297	3.6576		12.192		
Tank	T298	3.6576		12.192		
Tank	T299	3.6576		12.192		
Tank	T300	3.6576		12.192		
Tank	T301	3.6576		12.192		
Tank	T302	3.6576		12.192		
Tank	T303	3.6576		12.192		
Tank	T304	3.6576		12.192		
Tank	T305	3.6576		12.192		
Tank	T306	3.6576		19.5072		
Tank	T307	3.6576		19.5072		
Tank	T308	3.6576		19.5072		
Tank	T309	3.6576		19.5072		
Tank	T349	3.6576		12.192		
Tank	TFF1	3.6576		10.9728		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Building Downwash

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Downwash Type	Modeled Building ID	Tank Diameter (m)	Number of Tiers	Maximum Height (m)	Tier 1 Height (m)	Tier 2 Height (m)
Tank	TFF3	3.6576		10.9728		
Tank	TFF2	3.6576		10.9728		
Tank	TFF4	3.6576		10.9728		
Tank	PC1	1.3716		2.5603		
Tank	PC2	1.3716		2.5603		
Tank	PC3	1.3716		2.5603		
Tank	PC4	1.3716		2.5603		
Tank	T264	4.88		19.51		
Tank	T265	4.88		19.51		
Tank	T266	4.88		19.51		
Tank	Water	9.4488		10.3632		

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point Source Parameters

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Modeling Scenario	Source Description	Point Source Type	Point Source Justification	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Height [m]	Exit Temperature [K]	Exit Velocity [m/s]	Diameter [m]
S31	S31	Unit Impacts GLCMax	Tank 31 Scrubber. Authorized by PBR.	POINT	Scrubber outlet	278084.28	3273772.78	14.59	15.54	310.930	0.030	0.457
S31	S31Ni	Unit Impacts GLCNi	Tank 31 Scrubber. Authorized by PBR.	POINT	Scrubber outlet	278084.28	3273772.78	14.59	15.54	310.930	0.030	0.457
RTO-SCRUB	RTO_SCRUBH	State Health Effects Analysis	Thermal Oxidizer/Scrubber Outlet	POINT	Thermal Oxidizer/Scrubber Outlet	278028.00	3273918.00	14.26	16.15	333.706	13.015	0.509
S31	S31H	State Health Effects Analysis	Tank 31 Scrubber. Authorized by PBR.	POINT	Scrubber outlet	278084.28	3273772.78	14.59	15.54	310.930	0.030	0.457
RTO-SCRUB	RTO_SCRUBN	NAAQS Project Increase	Thermal Oxidizer/Scrubber Outlet	POINT	Thermal Oxidizer/Scrubber Outlet	278028.00	3273918.00	14.26	16.15	333.706	13.015	0.509
RTO-SCRUB	RTO_SCRUB	Unit Impacts GLCMax	Thermal Oxidizer/Scrubber Outlet	POINT	Thermal Oxidizer/Scrubber Outlet	278028.00	3273918.00	14.26	16.15	333.706	13.015	0.509
RTO-SCRUB	RTO_SCRUBNi	Unit Impacts GLCNi	Thermal Oxidizer/Scrubber Outlet	POINT	Thermal Oxidizer/Scrubber Outlet	278028.00	3273918.00	14.26	16.15	333.706	13.015	0.509

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Volume Source Calculations

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Footprint of Source Length (m)	Footprint of Source Width (m)	Length of Side (making it a square) SQRT(L * W)	Type of Volume Source (sigma y) *Pick from drop-down*	**Sigma Y** (m)	Vertical Span Min Release (m)	Vertical Span Max Release (m)	Vertical Dimension (m)	Type of Volume Source (sigma z) *Pick from drop-down*	Release Height (middle point of vertical span) (m)	Building Name (if on/adjacent to a building) *Pick from drop-down*	Adjacent Building Height, if applicable (m)	**Sigma Z** (m)
				0.00		Incomplete			0.00		0.00			Incomplete
				0.00		Incomplete			0.00		0.00			Incomplete
FUG-PR	FUGPR	12.19	18.29	14.93	Single Volume Source	3.47	0.00	6.17	6.17	Surface-Based Source	3.09			2.87
FUG	FUGNi	27.43	24.38	25.86	Single Volume Source	6.01	6.10	7.62	1.52	Elevated Source: On or adjacent to Building	6.86	MAIN	7.62	3.54
T116	116Ni	0.50	0.50	0.50	Single Volume Source	0.12	19.51	20.01	0.50	Elevated Source: On or adjacent to Building	19.76	T116	19.51	9.07
FUG-PR	FUGPRNi	12.19	18.29	14.93	Single Volume Source	3.47	0.00	6.17	6.17	Surface-Based Source	3.09			2.87
FUG	FUGH	27.43	24.38	25.86	Single Volume Source	6.01	6.10	7.62	1.52	Elevated Source: On or adjacent to Building	6.86	MAIN	7.62	3.54
T116	116H	0.50	0.50	0.50	Single Volume Source	0.12	19.51	20.01	0.50	Elevated Source: On or adjacent to Building	19.76	T116	19.51	9.07
FUG-PR	FUGPRH	12.19	18.29	14.93	Single Volume Source	3.47	0.00	6.17	6.17	Surface-Based Source	3.09			2.87
FUG	FUG	27.43	24.38	25.86	Single Volume Source	6.01	6.10	7.62	1.52	Elevated Source: On or adjacent to Building	6.86	MAIN	7.62	3.54
T116	116	0.50	0.50	0.50	Single Volume Source	0.12	19.51	20.01	0.50	Elevated Source: On or adjacent to Building	19.76	T116	19.51	9.07
				0.00		Incomplete			0.00		0.00			Incomplete

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Volume Source Parameters

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Modeled Release Height [m]	Modeled Length X [m]	Lateral Dimension SigmaY [m]	Vertical Dimension SigmaZ [m]	Modeling Scenario	Easting: X [m]	Northing: Y [m]	Base Elevation [m]	Source Description	Volume Source Size Justification
FUG-PR	FUGPR	3.09	14.93	3.47	2.87	Unit Impacts GLCMax	278002.06	3274028.83	13.73	Pilot Reactor Fugitives. Authorized by PBR.	Emissions from operations inside reactor building.
FUG	FUGNi	6.86	25.86	6.01	3.54	Unit Impacts GLCNi	278034.48	3273906.15	14.35	Packaging Fugitives	Approximate area of fugitives associated with RTO-SCRUB. Note that majority of fugitives are elevated.
T116	116Ni	19.76	0.50	0.12	9.07	Unit Impacts GLCNi	278034.68	3273959.91	14.15	Tank 116. Authorized by PBR.	Fittings on top of Tank 116.
FUG-PR	FUGPRNi	3.09	14.93	3.47	2.87	Unit Impacts GLCNi	278002.06	3274028.83	13.73	Pilot Reactor Fugitives. Authorized by PBR.	Emissions from operations inside reactor building.
FUG	FUGH	6.86	25.86	6.01	3.54	State Health Effects Analysis	278034.48	3273906.15	14.35	Packaging Fugitives	Approximate area of fugitives associated with RTO-SCRUB. Note that majority of fugitives are elevated.
T116	116H	19.76	0.50	0.12	9.07	State Health Effects Analysis	278034.68	3273959.91	14.15	Tank 116. Authorized by PBR.	Fittings on top of Tank 116.
FUG-PR	FUGPRH	3.09	14.93	3.47	2.87	State Health Effects Analysis	278002.06	3274028.83	13.73	Pilot Reactor Fugitives. Authorized by PBR.	Emissions from operations inside reactor building.
FUG	FUG	6.86	25.86	6.01	3.54	Unit Impacts GLCMax	278034.48	3273906.15	14.35	Packaging Fugitives	Approximate area of fugitives associated with RTO-SCRUB. Note that majority of fugitives are elevated.
T116	116	19.76	0.50	0.12	9.07	Unit Impacts GLCMax	278034.68	3273959.91	14.15	Tank 116. Authorized by PBR.	Fittings on top of Tank 116.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Point + Flare Emissions

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
RTO-SCRUB	RTO_SCRUB	it Impacts GLCM	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
RTO-SCRUB	RTO_SCRUB	it Impacts GLCM	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
S31	S31	it Impacts GLCM	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
S31	S31	it Impacts GLCM	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
RTO-SCRUB	RTO_SCRUBNi	nit Impacts GLCI	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
RTO-SCRUB	RTO_SCRUBNi	nit Impacts GLCI	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
S31	S31Ni	nit Impacts GLCI	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
S31	S31Ni	nit Impacts GLCI	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
RTO-SCRUB	RTO_SCRUBH	Health Effects Ar	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		Max allowable.	No	
S31	S31H	Health Effects Ar	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		Max allowable.	No	
RTO-SCRUB	RTO_SCRUBH	Health Effects Ar	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		Max allowable.	No	
S31	S31H	Health Effects Ar	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		Max allowable.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	NOx	1-hr	NAAQS	SIL analysis	No	0.169	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	NOx	Annual	NAAQS	SIL analysis	No	0.974	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	CO	1-hr	NAAQS	SIL analysis	No	0.183	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	SO2	1-hr	NAAQS	SIL analysis	No	0.350	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	SO2	1-hr	State Property Line	Project Wide	No	0.350	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	SO2	3-hr	NAAQS	SIL analysis	No	0.350	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	SO2	24-hr	NAAQS	SIL analysis	No	0.350	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	SO2	Annual	NAAQS	SIL analysis	No	0.660	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	PM10	24-hr	NAAQS	SIL analysis	No	0.0110	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	PM2.5	24-hr	NAAQS	SIL analysis	No	0.0110	Project increase.	No	
RTO-SCRUB	RTO_SCRUBN	AQS Project Incre	PM2.5	Annual	NAAQS	SIL analysis	No	0.0708	Project increase.	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Volume Source Emissions

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent Source?	Modeled Emission Rate [lb/hr]	Basis of Emission Rate	Scalars or Factors Used?	Scalar/Factor in Use
FUG	FUG	Impacts GLC	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
T116	116	Impacts GLC	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
FUG-PR	FUGPR	Impacts GLC	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
FUG	FUG	Impacts GLC	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
T116	116	Impacts GLC	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
FUG-PR	FUGPR	Impacts GLC	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
FUG	FUGNi	t Impacts GL	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
T116	116Ni	t Impacts GL	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
FUG-PR	FUGPRNi	t Impacts GL	Generic	1-hr			No	1.00	Unit modeling 1 lb/hr	No	
FUG	FUGNi	t Impacts GL	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
T116	116Ni	t Impacts GL	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
FUG-PR	FUGPRNi	t Impacts GL	Generic	Annual			No	0.228	Unit modeling 1 tpy	No	
FUG	FUGH	ealth Effects	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		Max allowable.	No	
T116	116H	ealth Effects	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		Max allowable.	No	
FUG-PR	FUGPRH	ealth Effects	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No		Max allowable.	No	
FUG	FUGH	ealth Effects	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		Max allowable.	No	
T116	116H	ealth Effects	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		Max allowable.	No	
FUG-PR	FUGPRH	ealth Effects	Health Effects Pollutant	Annual	Health Effects	Site Wide	No		Max allowable.	No	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Speciated Emissions

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Speciated Emissions by Model ID

CAS #	Chemical Species	Other Species	Short-Term ESL (µg/m³)	Long-Term ESL (µg/m³)	Modeled Project Wide Emission Rate [lb/hr] RTO_SCR UBH	Modeled Site Wide Emission Rate [lb/hr] RTO_SCR UBH	Modeled Project Wide Emission Rate [tpy] RTO_SCR UBH	Modeled Site Wide Emission Rate [tpy] RTO_SCR UBH	Modeled Project Wide Emission Rate [lb/hr] S31H	Modeled Site Wide Emission Rate [lb/hr] S31H	Modeled Project Wide Emission Rate [tpy] S31H	Modeled Site Wide Emission Rate [tpy] S31H	Modeled Project Wide Emission Rate [lb/hr] FUGH	Modeled Site Wide Emission Rate [lb/hr] FUGH	Modeled Project Wide Emission Rate [tpy] FUGH	Modeled Site Wide Emission Rate [tpy] FUGH	Modeled Project Wide Emission Rate [lb/hr] 116H	Modeled Site Wide Emission Rate [lb/hr] 116H	Modeled Project Wide Emission Rate [tpy] 116H	Modeled Site Wide Emission Rate [tpy] 116H	Modeled Project Wide Emission Rate [lb/hr] FUGPRH	Modeled Site Wide Emission Rate [lb/hr] FUGPRH	Modeled Project Wide Emission Rate [tpy] FUGPRH	Modeled Site Wide Emission Rate [tpy] FUGPRH
75-86-5	acetone cyanohydrin		40	4	0.0750		0.124						0.00338		0.0148										
-------	Other (Please specify):	dibasic ester, generic, not otherwise specified	100	10	0.174		0.177						0.00338		0.0148										
71-41-0	1-pentanol		360	73	1.17		1.26						0.00338		0.0148										
75-85-4	tert-pentanol		320	0	1.17		1.26						0.00338		0.0148										
64742-94-5	aromatic solvent naphtha, heavy		2560	256	0.247		0.349						0.00338		0.0148										
65-85-0 (vapor)	benzoic acid		500	50	2.44E-04		3.65E-05						0.00E+00		0.00E+00										
71-36-3	1-butanol		610	61	1.60		1.65						0.00338		0.0148										
590-01-2	n-butyl propionate		230	23	0.956		3.15						0.00338		0.0148										
-------	Other (Please specify):		Provide Documentation	Provide Documentation	0.101	0.152	0.104	0.176					0.00338	0.00675	0.0148	0.0296									
79-11-8	chloroacetic acid		20	2	0.0983	0.147	0.184	0.313					0.00338	0.00675	0.0148	0.0296									
68439-46-3	alcohols, C9-C11, ethoxylated		600	60	0.370		0.305						0.00338		0.0148										
143-10-2	decylmercaptan		40	4	0.0132		0.00612						0.00E+00		0.00E+00										
79-43-6	dichloroacetic acid		26	2.6	0.118		0.0992						0.00338		0.0148										
95-50-1	1,2-dichlorobenzene		900	160	0.691		0.903						0.00338		0.0148										
123-31-9	hydroquinone		20	2	1.83E-07		2.13E-09						0.00E+00		0.00E+00										
110-98-5	1,1'-oxydi-2-propanol		1200	120	0.00690		0.00523						0.00E+00		0.00E+00										
112-55-0	1-dodecanethiol		8	0.8	0.00716		0.00325						0.00E+00		0.00E+00										
100-41-4	ethylbenzene		26000	570	2.89		3.99						0.00338		0.0148										
27247-96-7	2-ethylhexyl nitrate		340	34	0.197		0.144						0.00338		0.0148										
111-14-8	heptanoic acid		240	53	0.0596		0.0556						0.00E+00		0.00E+00										
2917-26-2	1-hexadecanethiol		50	5	1.05E-08		3.43E-11						0.00E+00		0.00E+00										
150-76-5	4-methoxyphenol		Must Meet NAAQS	Must Meet NAAQS																					
68551-16-6	isoalkanes, C9-C11		3500	350	2.02		6.66						0.00338		0.0148										
8008-20-6	kerosene		1000	100	0.948		1.29						0.00338		0.0148										
79-41-4	methacrylic acid		180	18	0.333		0.289						0.00338		0.0148										
75-75-2	methanesulfonic acid		100	10	2.30E-04		1.58E-04						0.00E+00		0.00E+00										
98-83-9	alpha-methylstyrene		250	48	0.894		1.12						0.00338		0.0148										
1338-24-5	naphthenic acid		1000	100	1.60		3.69						0.00338		0.0148										
1455-21-6	1-nonanethiol		33	3.3	0.0930		0.0679						0.00E+00		0.00E+00										
111-65-9	n-octane		5600	540	3.41		5.20						0.00338		0.0148										
144-62-7	oxalic acid		10	1	1.79E-04		5.90E-04						0.00E+00		0.00E+00										
110-85-0	piperazine		1	0.1	0.0980	0.147	0.0718	0.122		1.46E-04		7.45E-05	0.00338	0.00675	0.0148	0.0296									
142-64-3	piperazine dihydrochloride		1	0.1	0.00117		0.00385						0.00E+00		0.00E+00										
9003-29-6	polybutene		5000	500	0.146		0.139						0.00E+00		0.00E+00										
9003-27-4	polyisobutylenes		23000	7100	3.21		7.57						0.00338		0.0148										
2825-82-3	tetrahydrodicyclopentadiene		270	27	0.851		0.972						0.00338		0.0148										
105-59-9	N-methyldiethanolamine		96	9.6	0.00165		9.77E-04						0.00E+00		0.00E+00										
60828-78-6 (vapor)	alpha-(3,5-dimethyl-1-(2-methylpropyl)hexyl)-omega-hydroxy-poly(oxy-1,2-ethanediyl)		600	60	0.00826		0.0272						0.00E+00		0.00E+00										
25103-58-6	tert-dodecyl mercaptan		8	0.8	0.0736	0.110	0.0672	0.114					0.00E+00	0.00E+00	0.00E+00	0.00E+00									
76-03-9	trichloroacetic acid		70	7	0.0830		0.0592						0.00E+00		0.00E+00										
96-18-4	1,2,3-trichloropropane		600	60	0.910		1.66						0.00338		0.0148										
112-24-3	triethylenetetramine		60	6	0.00744		0.00574						0.00E+00		0.00E+00										
75-98-9 (vapor)	pivalic acid		500	50	0.310		0.330						0.00338		0.0148										
26471-62-5	toluene diisocyanate		0.7	0.1	0.0279	0.0419	0.0230	0.0392					0.00E+00	0.00E+00	0.00E+00	0.00E+00		0.0533		2.72E-04		0.0115		1.51E-04	
111-40-0	diethylenetriamine		42	4.2	0.0209		0.0205						0.00E+00		0.00E+00										
1330-20-7	xylene		2200	180	2.56		3.27						0.00338		0.0148										
106-42-3	p-xylene		2200	180	2.68		3.47						0.00338		0.0148										
64-19-7	acetic acid		250	25	0.0263		0.0340						0.00338		0.0148										
108-24-7	acetic anhydride		120	12	0.0176		0.0203						0.00338		0.0148										
67-64-1	acetone		7800	4800	0.309		0.522						0.00338		0.0148										
75-05-8	acetonitrile		340	34	0.0945		0.140						0.00338		0.0148										
79-10-7	acrylic acid		60	6	0.00895		0.00963						0.00338		0.0148										
107-13-1	acrylonitrile		330	2.1	0.157		0.231						0.00338		0.0148										
-------	Other (Please specify):	alkylated aromatic compounds	1250	125	0.114		0.176						0.00338		0.0148										
628-63-7	n-amyl acetate		2700	270	0.122		0.227						0.00338		0.0148										
123-86-4	n-butyl acetate		11000	1400	0.0417		0.0577						0.00338		0.0148										
540-88-5	tert-butyl acetate		9500	950	0.112		0.176						0.00338		0.0148										
141-32-2	butyl acrylate		110	11	0.0202		0.0255						0.00338		0.0148										
75-65-0	tert-butyl alcohol		620	62	0.0927		0.115						0.00338		0.0148										
142-96-1	dibutyl ether		21000	2100	0.0247		0.0325						0.00338		0.0148										
75-91-2	tert-butyl hydroperoxide		100	10	0.0295		0.0454						0.00338		0.0148										
1319-77-3	cresols (mixed isomers)		4.4	10	0.0516	0.0775	0.0951	0.162					0.00338	0.00675	0.0148	0.0296									
110-82-7	cyclohexane		3400	340	0.201		0.327						0.00338		0.0148										
108-94-1	cyclohexanone		800	80	0.0541		0.0968						0.00338		0.0148										
68515-43-5	dialkyl phthalates, C6-C11		50	5	0.249		0.661						0.00338		0.0148										
25167-70-8	diisobutylene		3400	340	0.128		0.190						0.00338		0.0148										
51200-87-4	4,4-dimethyloxazolidine		970	97	0.0230		0.0299						0.00338		0.0148										
287-92-3	cyclopentane		17000	1700	0.135		0.235						0.00338		0.0148										
64-17-5	ethanol		18800	1880	0.0785		0.0971						0.00338		0.0148										
141-78-6	ethyl acetate		3100	1440	0.207		0.318						0.00338		0.0148										
140-88-5	ethyl acrylate		4.9	16	0.108	0.162	0.145	0.247					0.00338	0.00675	0.0148	0.0296									
107-15-3	ethylenediamine		250	25	0.0253		0.0314						0.00338		0.0148										
110-80-5	2-ethoxyethanol		180	18	0.0153		0.0169						0.00338		0.0148										
50-00-0	formaldehyde		15	3.3	0.00287		0.00269						0.00338		0.0148										
64-18-6	formic acid		90	9	0.0505		0.0767						0.00338		0.0148										
8006-61-9	gasoline		3500	350	0.779		2.08						0.00338		0.0148										
111-30-8	glutaraldehyde		2	0.2	5.88E-04		9.38E-04						0.00338		0.0148										
142-82-5	n-heptane		10000	2700	0.117		0.178						0.00338		0.0148										
124-09-4	hexamethylenediamine		16	0.54	0.00512	0.00768	0.0169	0.0287					0.00338	0.00675	0.0148	0.0296									
110-54-3	n-hexane		5600	200	0.310		0.515						0.00338		0.0148										
111-27-3	1-hexanol		1700	170	0.0559		0.103						0.00338		0.0148										
592-41-6	1-hexene		1700	170	0.370		0.619						0.00338		0.0148										
64742-49-0	naphtha (petroleum), hydrotreated light		3500	350	0.0818		0.124						0.00338		0.0148										
79-14-1	glycolic acid		250	25	0.00875		0.0289						0.00338		0.0148										
123-51-3	isoamyl alcohol		150	73	0.00984		0.00982						0.00338		0.0148										
-------	Other (Please specify):	ketone, generic, not otherwise specified	500	50	0.0494		0.0742						0.00338		0.0148										
78-83-1	isobutyl alcohol		1500	150	0.0279		0.0300						0.00338		0.0148										
79-31-2	isobutyric acid		230	90	0.00446		0.00426						0.00338		0.0148										

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Speciated Emissions

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

CAS #	Chemical Species	Other Species	Short-Term ESL (µg/m³)	Long-Term ESL (µg/m³)	Modeled Project Wide Emission Rate [lb/hr] RTO_SCR UBH	Modeled Site Wide Emission Rate [lb/hr] RTO_SCR UBH	Modeled Project Wide Emission Rate [tpy] RTO_SCR UBH	Modeled Site Wide Emission Rate [tpy] RTO_SCR UBH	Modeled Project Wide Emission Rate [lb/hr] S31H	Modeled Site Wide Emission Rate [lb/hr] S31H	Modeled Project Wide Emission Rate [tpy] S31H	Modeled Site Wide Emission Rate [tpy] S31H	Modeled Project Wide Emission Rate [lb/hr] FUGH	Modeled Site Wide Emission Rate [lb/hr] FUGH	Modeled Project Wide Emission Rate [tpy] FUGH	Modeled Site Wide Emission Rate [tpy] FUGH	Modeled Project Wide Emission Rate [lb/hr] 116H	Modeled Site Wide Emission Rate [lb/hr] 116H	Modeled Project Wide Emission Rate [tpy] 116H	Modeled Site Wide Emission Rate [tpy] 116H	Modeled Project Wide Emission Rate [lb/hr] FUGPRH	Modeled Site Wide Emission Rate [lb/hr] FUGPRH	Modeled Project Wide Emission Rate [tpy] FUGPRH	Modeled Site Wide Emission Rate [tpy] FUGPRH
78-84-2	isobutyraldehyde		410	290	0.294		0.483						0.00338		0.0148									
13475-82-6	isododecane		3500	350	0.00813		0.00949						0.00338		0.0148									
540-84-1	2,2,4-trimethylpentane		5600	540	0.134		0.205						0.00338		0.0148									
67-63-0	isopropanol		4920	492	0.0786		0.0971						0.00338		0.0148									
141-79-7	mesityl oxide		400	40	0.0322		0.0438						0.00338		0.0148									
67-56-1	methanol		3900	2100	0.107		0.152						0.00338		0.0148									
4454-05-1	2-methoxy-3,4-dihydro-2H-pyran		500	50	0.0323		0.0427						0.00338		0.0148									
96-33-3	methyl acrylate		60	7	0.193		0.282						0.00338		0.0148									
108-11-2	4-methyl-2-pentanol		1000	100	0.0206		0.0255						0.00338		0.0148									
78-93-3	methyl ethyl ketone		18000	2600	0.177		0.260						0.00338		0.0148									
108-10-1	methyl isobutyl ketone		820	82	0.128		0.180						0.00338		0.0148									
563-80-4	methyl isopropyl ketone		7050	705	0.268		0.447						0.00338		0.0148									
80-62-6	methyl methacrylate		860	210	0.105		0.154						0.00338		0.0148									
1634-04-4	methyl tert-butyl ether		630	180	0.532		0.842						0.00338		0.0148									
79-24-3	nitroethane		3100	310	0.0404		0.0562						0.00338		0.0148									
79-46-9	2-nitropropane		50	5	0.0392		0.0517						0.00338		0.0148									
124-11-8	1-nonene		5700	570	0.0202		0.0248						0.00338		0.0148									
111-66-0	1-octene		3400	340	0.0542		0.0647						0.00338		0.0148									
112-05-0	nonanoic acid		120	64	1.48E-04		1.20E-04						0.00E+00		0.00E+00									
71-23-8	1-propanol		2460	246	0.0323		0.0378						0.00338		0.0148									
79-09-4	propionic acid		85	30	0.00969		0.0117						0.00338		0.0148									
123-38-6	propionaldehyde		92	40	0.426		0.704						0.00338		0.0148									
109-60-4	n-propyl acetate		8350	835	0.0924		0.127						0.00338		0.0148									
64741-84-0	naphtha (petroleum), solvent-refined light		3500	350	0.121		0.185						0.00338		0.0148									
100-42-5	styrene		110	140	0.0194		0.0250						0.00338		0.0148									
108-88-3	toluene		4500	1200	0.0681		0.0948						0.00338		0.0148									
8006-64-2	turpentine		1120	112	0.0904		0.210						0.00338		0.0148									
108-05-4	vinyl acetate		420	300	0.254		0.359						0.00338		0.0148									
107-05-1	allyl chloride		30	3	0.620	0.930	1.11	1.88					0.00338	0.00675	0.0148	0.0296								
109-79-5	1-butanethiol		2.7	1.8	0.100	0.150	0.150	0.255					0.00338	0.00675	0.0148	0.0296								
56-23-5	carbon tetrachloride		130	13	0.426		0.673						0.00338		0.0148									
-------	Other (Please specify):		Provide Documentation	Provide Documentation	0.107		0.238						0.00338		0.0148									
79-04-9	chloroacetylchloride		2.3	0.23	0.0799	0.120	0.171	0.291					0.00338	0.00675	0.0148	0.0296								
108-90-7	chlorobenzene		460	46	0.0407		0.0531						0.00338		0.0148									
67-66-3	chloroform		100	10	0.556	0.834	0.937	1.60					0.00338	0.00675	0.0148	0.0296								
1569-69-3	cyclohexylmercaptan		24	2.4	0.0167		0.0218						0.00338		0.0148									
107-06-2	ethylene dichloride		650	2.9	0.198		0.299						0.00338		0.0148									
540-59-0	1,2-dichloroethylene		7900	790	0.589		0.855						0.00338		0.0148									
75-09-2	methylene chloride		3600	350	0.832		1.38						0.00338		0.0148									
106-89-8	epichlorohydrin		20	2	0.0443		0.0586						0.00338		0.0148									
540-63-6	1,2-ethanedithiol		18	1.8	0.0137		0.0154						0.00338		0.0148									
1639-09-4	heptylmercaptan		2.7	2.7	0.00598		0.00605						0.00338		0.0148									
111-31-9	hexyl mercaptan		2.7	3	0.0167		0.0192						0.00338		0.0148									
75-33-2	isopropyl mercaptan		1.4	1.8	0.00E+00		0.00E+00						0.00E+00		0.00E+00									
25360-10-5	tertiary-nonyl mercaptan		33	3.3	0.0118		0.0388						0.00338		0.0148									
2885-00-9	1-octadecanethiol		60	6	0.0448		0.148						0.00338		0.0148									
111-88-6	octyl mercaptan		30	3	0.00426		0.00430						0.00338		0.0148									
127-18-4	tetrachloroethylene		2000	26	0.0892		0.172						0.00338		0.0148									
594-42-3	perchloromethyl mercaptan		8	0.8	0.0328		0.0394						0.00338		0.0148									
107-03-9	n-propyl mercaptan		3.7	1.6	0.284	0.426	0.463	0.787					0.00338	0.00675	0.0148	0.0296								
78-87-5	1,2-dichloropropane		460	46	0.103		0.189						0.00338		0.0148									
108-98-5	phenyl mercaptan		4.2	0.5	0.00599		0.00587						0.00338		0.0148									
109-99-9	tetrahydrofuran		1500	150	0.279		0.449						0.00338		0.0148									
71-55-6	1,1,1-trichloroethane		2800	1500	0.407		0.655						0.00338		0.0148									
79-01-6	trichloroethylene		540	54	0.252		0.382						0.00338		0.0148									
76-05-1 (not defined)	trifluoroacetic acid		17	8.1	0.313	0.470	0.466	0.793					0.00338	0.00675	0.0148	0.0296								
7647-01-0	hydrogen chloride		190	7.9	0.212		0.290						0.00338		0.0148									

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Combined Emissions

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

EPN	Model ID	Modeling Scenario	Pollutant	Modeled Averaging Time	Standard Type	Review Context	Intermittent	Source Type	Modeled Emission Rate [lb/hr]
RTO-SCRUB	RTO_SCRUB	Impacts GLC	Generic	1-hr			No	Point	1.00
RTO-SCRUB	RTO_SCRUB	Impacts GLC	Generic	Annual			No	Point	0.23
S31	S31	Impacts GLC	Generic	1-hr			No	Point	1.00
S31	S31	Impacts GLC	Generic	Annual			No	Point	0.23
RTO-SCRUB	RTO_SCRUBNi	it Impacts GL	Generic	1-hr			No	Point	1.00
RTO-SCRUB	RTO_SCRUBNi	it Impacts GL	Generic	Annual			No	Point	0.23
S31	S31Ni	it Impacts GL	Generic	1-hr			No	Point	1.00
S31	S31Ni	it Impacts GL	Generic	Annual			No	Point	0.23
RTO-SCRUB	RTO_SCRUBH	ealth Effects A	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Point	--
S31	S31H	ealth Effects A	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Point	--
RTO-SCRUB	RTO_SCRUBH	ealth Effects A	Health Effects Pollutant	Annual	Health Effects	Site Wide	No	Point	--
S31	S31H	ealth Effects A	Health Effects Pollutant	Annual	Health Effects	Site Wide	No	Point	--
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	NOx	1-hr	NAAQS	SIL analysis	No	Point	0.17
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	NOx	Annual	NAAQS	SIL analysis	No	Point	0.97
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	CO	1-hr	NAAQS	SIL analysis	No	Point	0.18
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	SO2	1-hr	NAAQS	SIL analysis	No	Point	0.35
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	SO2	1-hr	State Property Line	Project Wide	No	Point	0.35
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	SO2	3-hr	NAAQS	SIL analysis	No	Point	0.35
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	SO2	24-hr	NAAQS	SIL analysis	No	Point	0.35
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	SO2	Annual	NAAQS	SIL analysis	No	Point	0.66
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	PM10	24-hr	NAAQS	SIL analysis	No	Point	0.01
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	PM2.5	24-hr	NAAQS	SIL analysis	No	Point	0.01
RTO-SCRUB	RTO_SCRUBN	QS Project Inc	PM2.5	Annual	NAAQS	SIL analysis	No	Point	0.07
FUG	FUG	Impacts GLC	Generic	1-hr			No	Volume	1.00
T116	116	Impacts GLC	Generic	1-hr			No	Volume	1.00
FUG-PR	FUGPR	Impacts GLC	Generic	1-hr			No	Volume	1.00
FUG	FUG	Impacts GLC	Generic	Annual			No	Volume	0.23
T116	116	Impacts GLC	Generic	Annual			No	Volume	0.23
FUG-PR	FUGPR	Impacts GLC	Generic	Annual			No	Volume	0.23
FUG	FUGNi	it Impacts GL	Generic	1-hr			No	Volume	1.00
T116	116Ni	it Impacts GL	Generic	1-hr			No	Volume	1.00
FUG-PR	FUGPRNi	it Impacts GL	Generic	1-hr			No	Volume	1.00
FUG	FUGNi	it Impacts GL	Generic	Annual			No	Volume	0.23
T116	116Ni	it Impacts GL	Generic	Annual			No	Volume	0.23
FUG-PR	FUGPRNi	it Impacts GL	Generic	Annual			No	Volume	0.23
FUG	FUGH	ealth Effects A	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Volume	--
T116	116H	ealth Effects A	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Volume	--
FUG-PR	FUGPRH	ealth Effects A	Health Effects Pollutant	1-hr	Health Effects	Site Wide	No	Volume	--
FUG	FUGH	ealth Effects A	Health Effects Pollutant	Annual	Health Effects	Site Wide	No	Volume	--
T116	116H	ealth Effects A	Health Effects Pollutant	Annual	Health Effects	Site Wide	No	Volume	--
FUG-PR	FUGPRH	ealth Effects A	Health Effects Pollutant	Annual	Health Effects	Site Wide	No	Volume	--

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Modeling Scenarios

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Modeling Scenario	Scenario Description:
NAAQS Project Increase	NAAQS project increase modeling for NO2, SO2, CO, PM10, and PM2.5 for all applicable averaging periods.
State Health Effects Analysis	1-hr and annual State Health Effects analysis for pollutants where unit modeling indicated that impacts exceeded ESL thresholds.
Unit Impacts GLCMax	1-hr and annual unit impacts using GLCmax receptor grid. Used for health effects unit modeling.
Unit Impacts GLCNi	1-hr and annual unit Impacts using GLCni receptor grid. Used for health effects unit modeling.

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Secondary Formation of PM2.5

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

Modeled Emission Rates for Precursors (MERPs) Demonstration Tool for Calculating Secondary $PM_{2.5}$ Impacts								
			Selection of Variables		MERP Value		Total Secondary Value ($\mu g/m^3$)	
Precursor	Project Increases (tpy)	Source Selection	Emission Rate (tpy)	Height (m)	24-hr	Annual	24-hr $PM_{2.5}$	Annual $PM_{2.5}$
Nitrogen Oxide (NO_x)	0.973988615	worst-case			2649	10397	0.00265	0.00009
Sulfur Dioxide (SO_2)	0.660106956	worst-case			359	1820		

MERPs Demonstration Justification	**Applicar**
A. Provide justification for selection of worst-case MERP and/or site-specific source here. *Please limit your response to 2000 characters.*	**All internal comments**

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	6.23905	20.42
H_2SO_4	1-hr		1
H_2SO_4	24-hr		0.3
H_2S	1-hr		2.16 *(If property is residential, recreational, business, or commercial)*
H_2S	1-hr		3.24 *(If property is not residential, recreational, business, or commercial)*

Table 2. Site-wide Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr		1021
H_2SO_4	1-hr		50
H_2SO_4	24-hr		15
H_2S	1-hr		108 *(If property is residential, recreational, business, or commercial)*
H_2S	1-hr		162 *(If property is not residential, recreational, business, or commercial)*

Table 3. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	6.23905	7.8*
SO_2	3-hr	4.08068	25
SO_2	24-hr	1.92084	5
SO_2	Annual	0.159	1
PM_{10}	24-hr	0.0604	5
NO_2	1-hr	3.01257	7.5**
NO_2	Annual	0.234	1
CO	1-hr	3.26213	2000
CO	8-hr	1.51167	500

Additional information for the De Minimis values listed above can be found at:
* https://www.epa.gov/sites/production/files/2015-07/documents/appwso2.pdf
** https://www.tceq.texas.gov/assets/public/permitting/air/memos/guidance_1hr_no2naaqs.pdf

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Table 4. $PM_{2.5}$ Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	Secondary $PM_{2.5}$ Contribution (µg/m^3)	Total Conc. = Secondary $PM_{2.5}$ + GLCmax (µg/m^3)	De Minimis (µg/m^3)
$PM_{2.5}$	24-hr	0.0604	0.002647704	0.06302	1.2*
$PM_{2.5}$	Annual	0.0171	9.12752E-05	0.01715	0.2*

Additional information for the De Minimis values listed above can be found at:
* https://www.tceq.texas.gov/permitting/air/modeling/epa-mod-guidance.html

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Table 5. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + GLCmax] (µg/m^3)	Standard (µg/m^3)
SO_2	1-hr		0	0	196
SO_2	3-hr		0	0	1300
SO_2	24-hr		0	0	365
SO_2	Annual		0	0	80
PM_{10}	24-hr		0	0	150
Pb	3-mo		0	0	0.15
NO_2	1-hr		0	0	188
NO_2	Annual		0	0	100
CO	1-hr		0	0	40000
CO	8-hr		0	0	10000

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

NAAQS-SPL Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Table 6. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m^3)	Secondary $PM_{2.5}$ Contribution (µg/m^3)	Background (µg/m^3)	Total Conc. = [Background + Secondary + GLCmax] (µg/m^3)	Standard (µg/m^3)
$PM_{2.5}$	24-hr		0.002647704	0	0.00265	35
$PM_{2.5}$	Annual		9.12752E-05	0	9.13E-05	12

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Unit Impact Multipliers

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

EPN	Model ID	Modeling Scenario	Averaging Time	GLCmax ($\mu g/m^3$ per lb/hr)	GLCmax ($\mu g/m^3$ per tpy)
RTO-SCRUB	RTO_SCRUB	Unit Impacts GLCMax	1-hr	17.83	
RTO-SCRUB	RTO_SCRUB	Unit Impacts GLCMax	Annual		0.240
S31	S31	Unit Impacts GLCMax	1-hr	114.11	
S31	S31	Unit Impacts GLCMax	Annual		1.42
RTO-SCRUB	RTO_SCRUBNi	Unit Impacts GLCNi	1-hr	4.94	
RTO-SCRUB	RTO_SCRUBNi	Unit Impacts GLCNi	Annual		0.0663
S31	S31Ni	Unit Impacts GLCNi	1-hr	23.01	
S31	S31Ni	Unit Impacts GLCNi	Annual		0.229
FUG	FUG	Unit Impacts GLCMax	1-hr	93.88	
T116	116	Unit Impacts GLCMax	1-hr	34.54	
FUG-PR	FUGPR	Unit Impacts GLCMax	1-hr	69.50	
FUG	FUG	Unit Impacts GLCMax	Annual		4.16
T116	116	Unit Impacts GLCMax	Annual		0.593
FUG-PR	FUGPR	Unit Impacts GLCMax	Annual		5.16
FUG	FUGNi	Unit Impacts GLCNi	1-hr	4.24	
T116	116Ni	Unit Impacts GLCNi	1-hr	5.50	
FUG-PR	FUGPRNi	Unit Impacts GLCNi	1-hr	4.76	
FUG	FUGNi	Unit Impacts GLCNi	Annual		0.194
T116	116Ni	Unit Impacts GLCNi	Annual		0.102
FUG-PR	FUGPRNi	Unit Impacts GLCNi	Annual		0.204

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS		Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6	Step 7: Site Wide				Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL [ug/m^3]	10% ESL Step 3 Modeled GLCmax [ug/m^3]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [ug/m^3]	10% ESL Step 4 Production Project Only GLCmax [ug/m^3]	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [ug/m^3]	25% ESL Step 4 MSS Project Only GLCmax [ug/m^3]	Full ESL Step 5 GLCmax [ug/m^3]	*1X ESL GLCmax* Step 5 MSS Hours of Exceedance	*2X ESL GLCmax* Step 5 MSS Hours of Exceedance	*4X ESL GLCmax* Step 5 MSS Hours of Exceedance	*10X ESL GLCmax* Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?	Site Wide GLCmax [ug/m^3]	Site Wide GLCni [ug/m^3]	GLCni Location Easting: X [m]	GLCni Location Northing: Y [m]	*1X ESL GLCni* Hours of Exceedance	*2X ESL GLCmax* Hours of Exceedance	*4X ESL GLCmax* Hours of Exceedance	*10X ESL GLCmax* Hours of Exceedance
acetone cyanohydrin	75-86-5	1-hr	40	1.65										No (Proceed with Step 7)								
dibasic ester, generic, not otherwise specified	--------	1-hr	100	3.42										No (Proceed with Step 7)								
1-pentanol	71-41-0	1-hr	380	21.10										No (Proceed with Step 7)								
tert-pentanol	75-85-4	1-hr	320	21.10										No (Proceed with Step 7)								
aromatic solvent naphtha, heavy	64742-94-5	1-hr	2560	4.72										No (Proceed with Step 7)								
benzoic acid	65-85-0 (vapor)	1-hr	500	0.00										No (Proceed with Step 7)								
1-butanol	71-36-3	1-hr	610	28.86										No (Proceed with Step 7)								
n-butyl propionate	590-01-2	1-hr	230	17.37										No (Proceed with Step 7)								
o	--------	1-hr	Provide Documentation	2.12										No (Proceed with Step 7)	3.34	0.78	calculated using unit mo	calculated using unit modeling.				
chloroacetic acid	79-11-8	1-hr	20	2.07										No (Proceed with Step 7)	3.26	0.76	calculated using unit mo	calculated using unit modeling.				
alcohols, C9-C11, ethoxylated	68439-46-3	1-hr	600	6.91										No (Proceed with Step 7)								
decylmercaptan	143-10-2	1-hr	40	0.24										No (Proceed with Step 7)								
dichloroacetic acid	79-43-6	1-hr	26	2.41										No (Proceed with Step 7)								
1,2-dichlorobenzene	95-50-1	1-hr	900	12.64										No (Proceed with Step 7)								
hydroquinone	123-31-9	1-hr	20	0.00										No (Proceed with Step 7)								
1,1'-oxydi-2-propanol	110-98-5	1-hr	1200	0.12										No (Proceed with Step 7)								
1-dodecanethiol	112-55-0	1-hr	8	0.13										No (Proceed with Step 7)								
ethylbenzene	100-41-4	1-hr	26000	51.76										No (Proceed with Step 7)								
2-ethylhexyl nitrate	27247-96-7	1-hr	340	3.82										No (Proceed with Step 7)								
heptanoic acid	111-14-8	1-hr	240	1.06										No (Proceed with Step 7)								
1-hexadecanethiol	2917-26-2	1-hr	50	0.00										No (Proceed with Step 7)								
4-methoxyphenol	150-76-5	1-hr	Must Meet NAAQS	0.00										No (Proceed with Step 7)								
isoalkanes, C8-C11	68551-16-6	1-hr	3500	36.35										No (Proceed with Step 7)								
kerosene	8008-20-6	1-hr	1000	17.21										No (Proceed with Step 7)								
methacrylic acid	79-41-4	1-hr	180	6.25										No (Proceed with Step 7)								
methanesulfonic acid	75-75-2	1-hr	100	0.00										No (Proceed with Step 7)								
alpha-methylstyrene	98-83-9	1-hr	250	16.26										No (Proceed with Step 7)								
naphthenic acid	1338-24-5	1-hr	1000	28.80										No (Proceed with Step 7)								
1-nonanethiol	1455-21-6	1-hr	33	1.66										No (Proceed with Step 7)								
n-octane	111-65-9	1-hr	5600	61.19										No (Proceed with Step 7)								
oxalic acid	144-62-7	1-hr	10	0.00										No (Proceed with Step 7)								
piperazine	110-85-0	1-hr	1	2.06										No (Proceed with Step 7)	2.70	0.76	calculated using unit mo	calculated using unit modeling.	3	0	0	
piperazine dihydrochloride	142-64-3	1-hr	1	0.02										No (Proceed with Step 7)								
polybutene	9003-29-6	1-hr	5000	2.60										No (Proceed with Step 7)								
polyisobutylenes	9003-27-4	1-hr	23000	57.61										No (Proceed with Step 7)								
tetrahydrodicyclopentadiene	2825-82-3	1-hr	270	15.48										No (Proceed with Step 7)								
N-methyldiethanolamine	105-59-9	1-hr	96	0.03										No (Proceed with Step 7)								
alpha-(3,5-dimethyl-1-(2-methylpropyl)hexyl)-omega-hydroxy-poly(oxy-1,2-ethanediyl)	0828-78-6 (vapo	1-hr	600	0.15										No (Proceed with Step 7)								
tert-dodecyl mercaptan	25103-58-6	1-hr	8	1.31										No (Proceed with Step 7)	1.97	0.55	calculated using unit mo	calculated using unit modeling.				
trichloroacetic acid	76-03-9	1-hr	70	1.48										No (Proceed with Step 7)								
1,2,3-trichlorooropane	96-18-4	1-hr	600	16.54										No (Proceed with Step 7)								
triethylenetetramine	112-24-3	1-hr	60	0.13										No (Proceed with Step 7)								
pivalic acid	75-98-9 (vapor)	1-hr	500	5.85										No (Proceed with Step 7)								
toluene diisocyanate	26471-62-5	1-hr	0.7	0.50										No (Proceed with Step 7)	1.93	0.55	calculated using unit mo	calculated using unit modeling.	19	0	0	
diethylenetriamine	111-40-0	1-hr	42	0.37										No (Proceed with Step 7)								
xylene	1330-20-7	1-hr	2200	45.92										No (Proceed with Step 7)								
p-xylene	106-42-3	1-hr	2200	48.01										No (Proceed with Step 7)								
acetic acid	64-19-7	1-hr	250	0.79										No (Proceed with Step 7)								
acetic anhydride	108-24-7	1-hr	120	0.83										No (Proceed with Step 7)								
acetone	67-64-1	1-hr	7800	5.83										No (Proceed with Step 7)								
acetonitrile	75-05-8	1-hr	340	2.00										No (Proceed with Step 7)								
acrylic acid	79-10-7	1-hr	60	0.48										No (Proceed with Step 7)								
acrylonitrile	107-13-1	1-hr	330	3.11										No (Proceed with Step 7)								
alkylated aromatic compounds	--------	1-hr	1250	2.35										No (Proceed with Step 7)								
n-amyl acetate	628-63-7	1-hr	2700	2.49										No (Proceed with Step 7)								
n-butyl acetate	123-86-4	1-hr	11000	1.06										No (Proceed with Step 7)								
tert-butyl acetate	540-88-5	1-hr	9500	2.32										No (Proceed with Step 7)								
butyl acrylate	141-32-2	1-hr	110	0.68										No (Proceed with Step 7)								
tert-butyl alcohol	75-65-0	1-hr	620	1.97										No (Proceed with Step 7)								
dibutyl ether	142-96-1	1-hr	21000	0.76										No (Proceed with Step 7)								
tert-butyl hydroperoxide	75-91-2	1-hr	100	0.84										No (Proceed with Step 7)								
cresols (mixed isomers)	1319-77-3	1-hr	4.4	1.24										No (Proceed with Step 7)	2.01	0.41	calculated using unit mo	calculated using unit modeling.				
cyclohexane	110-82-7	1-hr	3400	3.90										No (Proceed with Step 7)								
cyclohexanone	108-94-1	1-hr	800	1.28										No (Proceed with Step 7)								
dialkyl phthalates, C6-C11	68515-43-5	1-hr	50	4.76										No (Proceed with Step 7)								
diisobutylene	25167-70-8	1-hr	3400	2.60										No (Proceed with Step 7)								
4,4-dimethyloxazolidine	51200-87-4	1-hr	970	0.73										No (Proceed with Step 7)								
cyclopentane	287-92-3	1-hr	17000	2.72										No (Proceed with Step 7)								
ethanol	64-17-5	1-hr	18800	1.72										No (Proceed with Step 7)								
ethyl acetate	141-78-6	1-hr	3100	4.00										No (Proceed with Step 7)								
ethyl acrylate	140-88-5	1-hr	4.9	2.24										No (Proceed with Step 7)	3.53	0.83	calculated using unit mo	calculated using unit modeling.				
ethylenediamine	107-15-3	1-hr	250	0.77										No (Proceed with Step 7)								
2-ethoxyethanol	110-80-5	1-hr	180	0.59										No (Proceed with Step 7)								
formaldehyde	50-00-0	1-hr	15	0.37										No (Proceed with Step 7)								
formic acid	64-18-6	1-hr	90	1.22										No (Proceed with Step 7)								
gasoline	8006-61-9	1-hr	3500	14.20										No (Proceed with Step 7)								
glutaraldehyde	111-30-8	1-hr	2	0.33										No (Proceed with Step 7)								
n-heptane	142-82-5	1-hr	10000	2.40										No (Proceed with Step 7)								
hexamethylenediamine	124-09-4	1-hr	16	0.41										No (Proceed with Step 7)	0.77	0.07	calculated using unit mo	calculated using unit modeling.				
n-hexane	110-54-3	1-hr	5600	5.84										No (Proceed with Step 7)								
1-hexanol	111-27-3	1-hr	1700	1.31										No (Proceed with Step 7)								
1-hexene	592-41-6	1-hr	1700	6.92										No (Proceed with Step 7)								
naphtha [petroleum], hydrotreated light	64742-49-0	1-hr	3500	1.78										No (Proceed with Step 7)								
glycolic acid	79-14-1	1-hr	250	0.47										No (Proceed with Step 7)								
isoamyl alcohol	123-51-3	1-hr	150	0.49										No (Proceed with Step 7)								
ketone, generic, not otherwise specified	--------	1-hr	500	1.20										No (Proceed with Step 7)								
isobutyl alcohol	78-83-1	1-hr	1500	0.82										No (Proceed with Step 7)								
isobutyric acid	79-31-2	1-hr	230	0.40										No (Proceed with Step 7)								
isobutyraldehyde	78-84-2	1-hr	410	5.56										No (Proceed with Step 7)								
isododecane	13475-82-6	1-hr	3500	0.46										No (Proceed with Step 7)								
2,2,4-trimethylpentane	540-84-1	1-hr	5600	2.71										No (Proceed with Step 7)								
isopropanol	67-63-0	1-hr	4920	1.72										No (Proceed with Step 7)								
mesityl oxide	141-79-7	1-hr	400	0.89										No (Proceed with Step 7)								
methanol	67-56-1	1-hr	3900	2.22										No (Proceed with Step 7)								
2-methoxy-3,4-dihydro-2H-pyran	4454-05-1	1-hr	500	0.89										No (Proceed with Step 7)								
methyl acrylate	96-33-3	1-hr	60	3.76										No (Proceed with Step 7)								
4-methyl-2-pentanol	108-11-2	1-hr	1000	0.68										No (Proceed with Step 7)								
methyl ethyl ketone	78-93-3	1-hr	18000	3.48										No (Proceed with Step 7)								
methyl isobutyl ketone	108-10-1	1-hr	820	2.59										No (Proceed with Step 7)								
methyl isopropyl ketone	563-80-4	1-hr	7050	5.09										No (Proceed with Step 7)								
methyl methacrylate	80-62-6	1-hr	860	2.19										No (Proceed with Step 7)								
methyl tert-butyl ether	1634-04-4	1-hr	630	9.81										No (Proceed with Step 7)								
nitroethane	79-24-3	1-hr	3100	1.04										No (Proceed with Step 7)								
2-nitropropane	79-46-9	1-hr	50	1.02										No (Proceed with Step 7)								
1-nonene	124-11-8	1-hr	5700	0.68										No (Proceed with Step 7)								
1-octene	111-66-0	1-hr	3400	1.28										No (Proceed with Step 7)								
nonanoic acid	112-05-0	1-hr	120	0.00										No (Proceed with Step 7)								
1-octanol	71-23-8	1-hr	2460	0.89										No (Proceed with Step 7)								
propionic acid	79-09-4	1-hr	85	0.49										No (Proceed with Step 7)								
propionaldehyde	123-38-6	1-hr	92	7.91										No (Proceed with Step 7)								
n-propyl acetate	109-60-4	1-hr	8350	1.96										No (Proceed with Step 7)								
naphtha (petroleum), solvent-refined light	64741-84-0	1-hr	3500	2.47										No (Proceed with Step 7)								
styrene	100-42-5	1-hr	110	0.66										No (Proceed with Step 7)								
toluene	108-88-3	1-hr	4500	1.53										No (Proceed with Step 7)								
turpentine	8006-64-2	1-hr	1120	1.93										No (Proceed with Step 7)								
vinyl acetate	108-05-4	1-hr	420	4.85										No (Proceed with Step 7)								
allyl chloride	107-05-1	1-hr	30	11.37										No (Proceed with Step 7)	17.21	4.62	calculated using unit mo	calculated using unit modeling.				
1-butanethiol	109-79-5	1-hr	2.7	2.10										No (Proceed with Step 7)	3.31	0.77	calculated using unit mo	calculated using unit modeling.				
carbon tetrachloride	56-23-5	1-hr	130	7.91										No (Proceed with Step 7)								
o	--------	1-hr	Provide Documentation	2.22										No (Proceed with Step 7)								
chloroacetylchloride	79-04-9	1-hr	2.3	1.74										No (Proceed with Step 7)	2.77	0.62	calculated using unit mo	calculated using unit modeling.				
chlorobenzene	108-90-7	1-hr	460	1.04										No (Proceed with Step 7)								
chloroform	67-66-3	1-hr	100	10.23										No (Proceed with Step 7)	15.51	4.15	calculated using unit mo	calculated using unit modeling.				
cyclohexylmercaptan	1569-69-3	1-hr	24	0.62										No (Proceed with Step 7)								
ethylene dichloride	107-06-2	1-hr	650	3.94										No (Proceed with Step 7)								
1,2-dichloroethylene	540-59-0	1-hr	7900	10.83										No (Proceed with Step 7)								
methylene chloride	75-09-2	1-hr	3600	15.16										No (Proceed with Step 7)								
epichlorohydrin	106-89-8	1-hr	20	1.11										No (Proceed with Step 7)								
1,2-ethanedithiol	540-63-6	1-hr	18	0.56										No (Proceed with Step 7)								
heptylmercaptan	1639-09-4	1-hr	2.7	0.42										No (Proceed with Step 7)								
hexyl mercaptan	111-31-9	1-hr	2.7	0.62										No (Proceed with Step 7)								
isopropyl mercaptan	75-33-2	1-hr	1.4	0.00										No (Proceed with Step 7)								
tertiary-nonyl mercaptan	25360-10-5	1-hr	33	0.53										No (Proceed with Step 7)								
1-octadecanethiol	2885-00-9	1-hr	60	1.12										No (Proceed with Step 7)								
octyl mercaptan	111-88-6	1-hr	30	0.39										No (Proceed with Step 7)								
tetrachloroethylene	127-18-4	1-hr	2000	1.91										No (Proceed with Step 7)								
perchloromethyl mercaptan	594-42-3	1-hr	8	0.90										No (Proceed with Step 7)								
n-propyl mercaptan	107-03-9	1-hr	3.7	5.38										No (Proceed with Step 7)	7.68	2.13	calculated using unit mo	calculated using unit modeling.	2	0	0	

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS		Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6	Step 7: Site Wide				Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL (µg/m³)	10% ESL Step 3 Modeled GLCmax (µg/m³)	25 % ESL Step 4 Production GLCmax since most recent site wide modeling (µg/m³)	10% ESL Step 4 Production Project Only GLCmax (µg/m³)	50% ESL Step 4 MSS GLCmax since most recent site wide modeling (µg/m³)	25% ESL Step 4 MSS Project Only GLCmax (µg/m³)	Full ESL Step 5 GLCmax (µg/m³)	*1X ESL GLCmax* Step 5 MSS Hours of Exceedance	*2X ESL GLCmax* Step 5 MSS Hours of Exceedance	*4X ESL GLCmax* Step 5 MSS Hours of Exceedance	*10X ESL GLCmax* Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?	Site Wide GLCmax (µg/m³)	Site Wide GLCni (µg/m³)	GLCni Location Easting: X (m)	GLCni Location Northing: Y (m)	*1X ESL GLCni* Hours of Exceedance	*2X ESL GLCmax* Hours of Exceedance	*4X ESL GLCmax* Hours of Exceedance	*10X ESL GLCmax* Hours of Exceedance
1,2-dichloropropane	78-87-5	1-hr	460	2.16										No (Proceed with Step 7)								
phenyl mercaptan	108-98-5	1-hr	4.2	0.42										No (Proceed with Step 7)								
tetrahydrofuran	109-99-9	1-hr	1500	5.28										No (Proceed with Step 7)								
1,1,1-trichloroethane	71-55-6	1-hr	2800	7.57										No (Proceed with Step 7)								
trichloroethylene	79-01-6	1-hr	540	4.81										No (Proceed with Step 7)								
trifluoroacetic acid	406-1 (not define	1-hr	17	5.90										No (Proceed with Step 7)	9.00	2.35	calculated using unit mo	calculated using unit modeling.				
hydrogen chloride	7647-01-0	1-hr	190	4.10										No (Proceed with Step 7)								
acetone cyanohydrin	75-86-5	Annual	4	0.09										No (Proceed with Step 7)								
dibasic ester, generic, not otherwise specified	-------	Annual	10	0.10										No (Proceed with Step 7)								
1-pentanol	71-41-0	Annual	73	0.36										No (Proceed with Step 7)								
tert-pentanol	75-85-4	Annual	0	0.36										No (Proceed with Step 7)								
aromatic solvent naphtha, heavy	64742-94-5	Annual	256	0.15										No (Proceed with Step 7)								
benzoic acid	65-85-0 (vapor)	Annual	50	0.00										No (Proceed with Step 7)								
1-butanol	71-36-3	Annual	61	0.46										No (Proceed with Step 7)								
n-butyl propionate	590-01-2	Annual	73	0.82										No (Proceed with Step 7)								
0	-------	Annual	Provide Documentation	0.09										No (Proceed with Step 7)	0.17	0.02	calculated using unit mo	calculated using unit modeling.				
chloroacetic acid	79-11-8	Annual	2	0.11										No (Proceed with Step 7)	0.20	0.03	calculated using unit mo	calculated using unit modeling.				
alcohols, C9-C11, ethoxylated	68439-46-3	Annual	60	0.13										No (Proceed with Step 7)								
decylmercaptan	143-10-2	Annual	4	0.00										No (Proceed with Step 7)								
dichloroacetic acid	79-43-6	Annual	2.6	0.09										No (Proceed with Step 7)								
1,2-dichlorobenzene	95-50-1	Annual	160	0.28										No (Proceed with Step 7)								
hydroquinone	123-31-9	Annual	2	0.00										No (Proceed with Step 7)								
1,1'-oxydi-2-propanol	110-98-5	Annual	120	0.00										No (Proceed with Step 7)								
1-dodecanethiol	112-55-0	Annual	0.8	0.00										No (Proceed with Step 7)								
ethylbenzene	100-41-4	Annual	570	1.02										No (Proceed with Step 7)								
2-ethylhexyl nitrate	27247-96-7	Annual	34	0.10										No (Proceed with Step 7)								
heptanoic acid	111-14-8	Annual	53	0.01										No (Proceed with Step 7)								
1-hexadecanethiol	2917-26-2	Annual	5	0.00										No (Proceed with Step 7)								
4-methoxyphenol	150-76-5	Annual	Must Meet NAAQS	0.00										No (Proceed with Step 7)								
isoalkanes, C9-C11	68551-16-6	Annual	350	1.66										No (Proceed with Step 7)								
kerosene	8008-20-6	Annual	100	0.37										No (Proceed with Step 7)								
methacrylic acid	79-41-4	Annual	18	0.13										No (Proceed with Step 7)								
methanesulfonic acid	75-75-2	Annual	10	0.00										No (Proceed with Step 7)								
alpha-methylstyrene	98-83-9	Annual	48	0.33										No (Proceed with Step 7)								
naphthenic acid	1338-24-5	Annual	100	0.95										No (Proceed with Step 7)								
1-nonanethiol	1455-21-6	Annual	3.3	0.02										No (Proceed with Step 7)								
n-octane	111-65-9	Annual	540	1.31										No (Proceed with Step 7)								
oxalic acid	144-62-7	Annual	1	0.00										No (Proceed with Step 7)								
piperazine	110-85-0	Annual	0.1	0.08										No (Proceed with Step 7)	0.13	0.01	calculated using unit mo	calculated using unit modeling.				
piperazine dihydrochloride	142-64-3	Annual	0.1	0.00										No (Proceed with Step 7)								
polybutene	9003-29-6	Annual	500	0.03										No (Proceed with Step 7)								
polyisobutylenes	9003-27-4	Annual	7100	1.86										No (Proceed with Step 7)								
tetrahydrodicyclopentadiene	2825-82-3	Annual	27	0.29										No (Proceed with Step 7)								
N-methyldiethanolamine	105-59-9	Annual	9.6	0.00										No (Proceed with Step 7)								
alpha-(3,5-dimethyl-1-(2-methylpropyl)hexyl)-omega-hydroxy-poly(oxy-1,2-ethanediyl)	0828-78-6 (vapo	Annual	60	0.01										No (Proceed with Step 7)								
tert-dodecyl mercaptan	25103-58-6	Annual	0.8	0.02										No (Proceed with Step 7)	0.03	0.01	calculated using unit mo	calculated using unit modeling.				
trichloroacetic acid	76-03-9	Annual	7	0.01										No (Proceed with Step 7)								
1,2,3-trichloropropane	96-18-4	Annual	60	0.46										No (Proceed with Step 7)								
triethylenetetramine	112-24-3	Annual	6	0.00										No (Proceed with Step 7)								
oxalic acid	75-98-9 (vapor)	Annual	50	0.14										No (Proceed with Step 7)								
toluene diisocyanate	26471-62-5	Annual	0.1	0.01										No (Proceed with Step 7)	0.04	0.00	calculated using unit mo	calculated using unit modeling.				
diethylenetriamine	111-40-0	Annual	4.2	0.00										No (Proceed with Step 7)								
xylene	1330-20-7	Annual	180	0.85										No (Proceed with Step 7)								
p-xylene	106-42-3	Annual	180	0.90										No (Proceed with Step 7)								
acetic acid	64-19-7	Annual	25	0.07										No (Proceed with Step 7)								
acetic anhydride	108-24-7	Annual	12	0.07										No (Proceed with Step 7)								
acetone	67-64-1	Annual	4800	0.19										No (Proceed with Step 7)								
acetonitrile	75-05-8	Annual	34	0.10										No (Proceed with Step 7)								
acrylic acid	79-10-7	Annual	6	0.06										No (Proceed with Step 7)								
acrylonitrile	107-13-1	Annual	2.1	0.12										No (Proceed with Step 7)								
alkylated aromatic compounds	-------	Annual	125	0.10										No (Proceed with Step 7)								
n-amyl acetate	628-63-7	Annual	270	0.12										No (Proceed with Step 7)								
n-butyl acetate	123-86-4	Annual	1400	0.08										No (Proceed with Step 7)								
tert-butyl acetate	540-88-5	Annual	950	0.10										No (Proceed with Step 7)								
butyl acrylate	141-32-2	Annual	11	0.07										No (Proceed with Step 7)								
tert-butyl alcohol	75-65-0	Annual	62	0.09										No (Proceed with Step 7)								
dibutyl ether	142-96-1	Annual	2100	0.07										No (Proceed with Step 7)								
tert-butyl hydroperoxide	75-91-2	Annual	10	0.07										No (Proceed with Step 7)								
cresols (mixed isomers)	1319-77-3	Annual	10	0.08										No (Proceed with Step 7)	0.16	0.02	calculated using unit mo	calculated using unit modeling.				
cyclohexane	110-82-7	Annual	340	0.14										No (Proceed with Step 7)								
cyclohexanone	108-94-1	Annual	80	0.08										No (Proceed with Step 7)								
dialkyl phthalates, C6-C11	68515-43-5	Annual	5	0.22										No (Proceed with Step 7)								
diisobutylene	25167-70-8	Annual	340	0.11										No (Proceed with Step 7)								
4,4-dimethyloxazolidine	51200-87-4	Annual	97	0.07										No (Proceed with Step 7)								
cyclopentane	287-92-3	Annual	1700	0.12										No (Proceed with Step 7)								
ethanol	64-17-5	Annual	1880	0.08										No (Proceed with Step 7)								
ethyl acetate	141-78-6	Annual	1440	0.14										No (Proceed with Step 7)								
ethyl acrylate	140-88-5	Annual	16	0.10										No (Proceed with Step 7)	0.18	0.02	calculated using unit mo	calculated using unit modeling.				
ethylenediamine	107-15-3	Annual	25	0.07										No (Proceed with Step 7)								
2-ethoxyethanol	110-80-5	Annual	18	0.07										No (Proceed with Step 7)								
formaldehyde	50-00-0	Annual	3.3	0.06										No (Proceed with Step 7)								
formic acid	64-18-6	Annual	9	0.08										No (Proceed with Step 7)								
gasoline	8006-61-9	Annual	350	0.56										No (Proceed with Step 7)								
glutaraldehyde	111-30-8	Annual	0.2	0.06										No (Proceed with Step 7)								
n-heptane	142-82-5	Annual	2700	0.10										No (Proceed with Step 7)								
hexamethylenediamine	124-09-4	Annual	0.54	0.07										No (Proceed with Step 7)	0.13	0.01	calculated using unit mo	calculated using unit modeling.				
n-hexane	110-54-3	Annual	200	0.10										No (Proceed with Step 7)								
1-hexanol	111-27-3	Annual	170	0.09										No (Proceed with Step 7)								
1-hexene	592-41-6	Annual	170	0.21										No (Proceed with Step 7)								
naphtha [petroleum], hydrotreated light	64742-49-0	Annual	350	0.09										No (Proceed with Step 7)								
glycolic acid	79-14-1	Annual	25	0.07										No (Proceed with Step 7)								
isoamyl alcohol	123-51-3	Annual	73	0.06										No (Proceed with Step 7)								
ketone, generic, not otherwise specified	-------	Annual	50	0.08										No (Proceed with Step 7)								
isobutyl alcohol	78-83-1	Annual	150	0.07										No (Proceed with Step 7)								
isobutanoic acid	79-31-2	Annual	90	0.06										No (Proceed with Step 7)								
isobutyraldehyde	78-84-2	Annual	290	0.18										No (Proceed with Step 7)								
isododecane	13475-82-6	Annual	350	0.06										No (Proceed with Step 7)								
2,2,4-trimethylpentane	540-84-1	Annual	540	0.11										No (Proceed with Step 7)								
isooctanol	67-63-0	Annual	492	0.08										No (Proceed with Step 7)								
mesityl oxide	141-79-7	Annual	40	0.07										No (Proceed with Step 7)								
methanol	67-56-1	Annual	2100	0.10										No (Proceed with Step 7)								
2-methoxy-3,4-dihydro-2H-pyran	4454-05-1	Annual	50	0.07										No (Proceed with Step 7)								
methyl acrylate	96-33-3	Annual	7	0.13										No (Proceed with Step 7)								
4-methyl-2-pentanol	108-11-2	Annual	100	0.07										No (Proceed with Step 7)								
methyl ethyl ketone	78-93-3	Annual	2600	0.12										No (Proceed with Step 7)								
methyl isobutyl ketone	108-10-1	Annual	82	0.10										No (Proceed with Step 7)								
methyl isopropyl ketone	563-80-4	Annual	705	0.17										No (Proceed with Step 7)								
methyl methacrylate	80-62-6	Annual	210	0.10										No (Proceed with Step 7)								
methyl tert-butyl ether	1634-04-4	Annual	180	0.26										No (Proceed with Step 7)								
nitroethane	79-24-3	Annual	310	0.07										No (Proceed with Step 7)								
2-nitropropane	79-46-9	Annual	5	0.07										No (Proceed with Step 7)								
1-nonene	124-11-8	Annual	570	0.07										No (Proceed with Step 7)								
1-octene	111-66-0	Annual	340	0.08										No (Proceed with Step 7)								
nonanoic acid	112-05-0	Annual	64	0.00										No (Proceed with Step 7)								
1-propanol	71-23-8	Annual	246	0.07										No (Proceed with Step 7)								
propionic acid	79-09-4	Annual	30	0.06										No (Proceed with Step 7)								
propionaldehyde	123-38-6	Annual	40	0.23										No (Proceed with Step 7)								
n-propyl acetate	109-60-4	Annual	835	0.09										No (Proceed with Step 7)								
naphtha (petroleum), solvent-refined light	64741-84-0	Annual	350	0.11										No (Proceed with Step 7)								
styrene	100-42-5	Annual	140	0.07										No (Proceed with Step 7)								
toluene	108-88-3	Annual	1200	0.08										No (Proceed with Step 7)								
turpentine	8006-64-2	Annual	112	0.11										No (Proceed with Step 7)								
vinyl acetate	108-05-4	Annual	300	0.15										No (Proceed with Step 7)								
allyl chloride	107-05-1	Annual	3	0.33										No (Proceed with Step 7)	0.58	0.13	calculated using unit mo	calculated using unit modeling.				
1-butanethiol	109-79-5	Annual	1.8	0.10										No (Proceed with Step 7)	0.18	0.02	calculated using unit mo	calculated using unit modeling.				
carbon tetrachloride	56-23-5	Annual	13	0.22										No (Proceed with Step 7)								
0	-------	Annual	Provide Documentation	0.12										No (Proceed with Step 7)								
chloroacetyl chloride	79-04-9	Annual	0.23	0.10										No (Proceed with Step 7)	0.19	0.03	calculated using unit mo	calculated using unit modeling.				
chlorobenzene	108-90-7	Annual	46	0.07										No (Proceed with Step 7)								
chloroform	67-66-3	Annual	10	0.29										No (Proceed with Step 7)	0.51	0.11	calculated using unit mo	calculated using unit modeling.				
cyclohexylmercaptan	1569-69-3	Annual	2.4	0.07										No (Proceed with Step 7)								
ethylene dichloride	107-06-2	Annual	2.9	0.13										No (Proceed with Step 7)								
1,2-dichloroethylene	540-59-0	Annual	790	0.27										No (Proceed with Step 7)								
methylene chloride	75-09-2	Annual	350	0.39										No (Proceed with Step 7)								
epichlorohydrin	106-89-8	Annual	2	0.08										No (Proceed with Step 7)								
1,2-ethanedithiol	540-63-6	Annual	1.8	0.07										No (Proceed with Step 7)								
heptylmercaptan	1639-09-4	Annual	2.7	0.06										No (Proceed with Step 7)								
hexyl mercaptan	111-31-9	Annual	3	0.07										No (Proceed with Step 7)								
isopropyl mercaptan	75-33-2	Annual	1.8	0.00										No (Proceed with Step 7)								
tertiary-nonyl mercaptan	25360-10-5	Annual	3.3	0.07										No (Proceed with Step 7)								
1-octadecanethiol	2885-00-9	Annual	6	0.10										No (Proceed with Step 7)								

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Health Effect Modeling Results

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Modeled Health Effect Results (MERA Guidance):				Step 3	Step 4: Production		Step 4: MSS		Step 5: MSS Only	Step 5: Hours of Exceedance				Step 6	Step 7: Site Wide				Step 7: Hours of Exceedance			
Chemical Species	CAS Number	Averaging Time	ESL [ug/m^3]	10% ESL Step 3 Modeled GLCmax [ug/m^3]	25 % ESL Step 4 Production GLCmax since most recent site wide modeling [ug/m^3]	10% ESL Step 4 Production Project Only GLCmax [ug/m^3]	50% ESL Step 4 MSS GLCmax since most recent site wide modeling [ug/m^3]	25% ESL Step 4 MSS Project Only GLCmax [ug/m^3]	Full ESL Step 5 GLCmax [ug/m^3]	*1X ESL GLCmax* Step 5 MSS Hours of Exceedance	*2X ESL GLCmax* Step 5 MSS Hours of Exceedance	*4X ESL GLCmax* Step 5 MSS Hours of Exceedance	*10X ESL GLCmax* Step 5 MSS Hours of Exceedance	Was Step 6 relied on to fall out of the MERA?	Site Wide GLCmax [ug/m^3]	Site Wide GLCni [ug/m^3]	GLCni Location Easting: X [m]	GLCni Location Northing: Y [m]	*1X ESL GLCni* Hours of Exceedance	*2X ESL GLCmax* Hours of Exceedance	*4X ESL GLCmax* Hours of Exceedance	*10X ESL GLCmax* Hours of Exceedance
octyl mercaptan	111-88-6	Annual	3	0.06										No (Proceed with Step 7)								
tetrachloroethylene	127-18-4	Annual	26	0.10										No (Proceed with Step 7)								
perchloromethyl mercaptan	594-42-3	Annual	0.8	0.07										No (Proceed with Step 7)								
n-propyl mercaptan	107-03-9	Annual	1.6	0.17										No (Proceed with Step 7)	0.21	0.06	calculated using unit mo	calculated using unit modeling.				
1,2-dichloropropane	78-87-5	Annual	46	0.11										No (Proceed with Step 7)								
phenyl mercaptan	108-98-5	Annual	0.5	0.06										No (Proceed with Step 7)								
tetrahydrofuran	109-99-9	Annual	150	0.17										No (Proceed with Step 7)								
1,1,1-trichloroethane	71-55-6	Annual	1500	0.22										No (Proceed with Step 7)								
trichloroethylene	79-01-6	Annual	54	0.15										No (Proceed with Step 7)								
trifluoroacetic acid	405-1 (not defined	Annual	8.1	0.17										No (Proceed with Step 7)	0.31	0.06	calculated using unit mo	calculated using unit modeling.				
hydrogen chloride	7647-01-0	Annual	7.9	0.13										No (Proceed with Step 7)								

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Modeling File Names

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Facility:

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
Third_Coast_Unit_GLCmax	Generic	1-hr	*.dta, *.grf, *.lst, *.run	GLCMax Unit Modeling 1-hour averaging period.
Third_Coast_Unit_GLCni	Generic	1-hr	*.dta, *.grf, *.lst, *.run	GLCni Unit Modeling 1-hour averaging period.
Third_Coast_Unit_GLCmax	Generic	Annual	*.dta, *.grf, *.lst, *.run	GLCMax Unit Modeling annual averaging period.
Third_Coast_Unit_GLCni	Generic	Annual	*.dta, *.grf, *.lst, *.run	GLCni Unit Modeling annual averaging period.
Third_Coast_SHE_2016_PIPER_HR	Piperazine	1-hr	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for piperazine for 1-hour averaging period
Third_Coast_SHE_2016_PIPER_AN	Piperazine	Annual	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for piperazine for annual averaging period
Third_Coast_SHE_2016_TDI_HR	Toluene Diisocyanate	1-hr	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for toluene diisocynate for 1-hour averaging period
Third_Coast_SHE_2016_TDI_AN	Toluene Diisocyanate	Annual	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for toluene diisocyanate for annual averaging period
Third_Coast_SHE_2016_PROP_HR	N-propyl mercaptan	1-hr	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for n-propyl mercaptan for 1-hour averaging period
Third_Coast_SHE_2016_PROP_AN	N-propyl mercaptan	Annual	*.dta, *.grf, *.lst, *.run	Sitewide GLCMax health effects analysis for n-propyl mercaptan for annual averaging period
Third_Coast_UNIT_NAAQS_2016_CO_HR	Carbon Monoxide	1-hr	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis CO Hourly
Third_Coast_UNIT_NAAQS_2016_NO2_HR	Nitrogen Dioxide	1-hr	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis NO2 Hourly
Third_Coast_UNIT_NAAQS_2016_NO2_AN	Nitrogen Dioxide	Annual	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis NO2 Annual
Third_Coast_UNIT_NAAQS_2016_SO2_HR	Sulfur Dioxide	1-hr	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis SO2 Hourly
Third_Coast_UNIT_NAAQS_2016_SO2_AN	Sulfur Dioxide	Annual	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis SO2 Annual

Texas Commission on Environmental Quality

Electronic Modeling Evaluation Workbook (EMEW)

Modeling File Names

Date: October 2020
Permit #: 92403

Company Name: Third Coast Packaging, Inc.

Model File Base Name	Pollutant	Averaging Time	File Extensions	Additional File Description
Third_Coast_UNIT_NAAQS_2016_PM2.5_HR	PM2.5	1-hr	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis PM2.5 Hourly
Third_Coast_UNIT_NAAQS_2016_PM2.5_AN	PM2.5	Annual	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis PM2.5 Annual
Third_Coast_UNIT_NAAQS_2016_PM10_HR	PM10	1-hr	*.dta, *.grf, *.lst, *.run	Project Increase NAAQS analysis PM10 Hourly
Brazoria_2016_lc_can_imp_zorad_sfc			.txt	AERSURFACE Output
NAAQS Downwash			*.pip, *.prw, *.so, *.tab	NAAQS analysis downwash
SHE Downwash			*.pip, *.prw, *.so, *.tab	Health effects analysis downwash
Unit Impacts Downwash			*.pip, *.prw, *.so, *.tab	Unit impacts downwash
Brazoria_LBXLCH16M			*.pfl, *.sfc	TCEQ Brazoria County medium surface roughness met data.
NEDU41349800			*.tif	NED data
Population for Urban CAPs 10-mile radius			*.pdf	Population estimate for urban dispersion

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MERA and Impacts Analysis Memo

1.0 Project Identification Information

Applicant:	Third Coast Packaging, Inc.
Facility:	Pearland Site; Tote and Drum Packaging Facility
Project:	NSR Renewal and Amendment; Project Number: TBD
Permit No.:	92403
City / County:	Pearland, Brazoria County
Customer Reference No.:	CN600398150
Regulated Entity No.:	RN102419330

2.0 Electronic Files

The following electronic files are included with the modeling submittal:

- The Excel *Electronic Modeling Evaluation Workbook (EMEW)* for non-SCREEN3 (version 2.3);
- An Excel spreadsheet of the Unit Impact Multiplier (UIM) calculations and emission rates; and
- Electronic versions of all input and output files for each dispersion modeling run, including data, grid, plot files, meteorological data files and plot plans will be submitted electronically to the TCEQ assigned permit reviewer using TCEQ's File Transfer Protocol (FTP) site.

3.0 MERA and Modeling Overview

Third Coast performed refined air dispersion modeling using AERMOD, which is detailed in the EMEW included as Appendix C. The following modeling analyses steps were performed:

- First, generic modeling using unit impacts was performed in order to evaluate model-predicted impacts from project increases and perform a Modeling and Effects Review Applicability (MERA) analysis to determine the site-wide modeling requirements for compounds with a project increase in emissions. Generic modeling (using 1 lb/hr) was performed for the two (2) project emission sources (EPNs: RTO-SCRUB and FUG) and for three (3) non-project sources located at the site, which were included in the MERA analysis;
- A MERA Step 2 (de minimis Increase) was performed for compounds with a project increase. The modeling attachments include a detailed description of the MERA Step 2 demonstration, including speciated emissions rates;
- A MERA Step 3 (10-percent of Effects Screening Level [ESL] Evaluation) was performed for compounds with a project increase. The modeling attachments include a detailed description of the MERA Step 3 demonstration, including speciated emissions rates;
- Site-wide modeling was initially performed using UIMs for compounds with project increases that did not fall out under MERA Step 3;

- A minor source health effects evaluation using refined modeling was performed for three (3) compounds where sitewide unit modeling using UIMs indicated potential impacts greater than two times the ESL (2xESL), which were:

  1. Piperazine (CAS 110-85-0);
  2. Toluene Diisocyante (CAS 26471-62-5); and
  3. Propyl mercaptan, n- (CAS 75-33-2).

  Refined modeling was used to evaluate the exceedances for these 3 compounds; and

- A NAAQS Significant Impacts Analysis and State Property Line Analysis was performed for project-related increases of nitrogen oxides (NO_X), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than 10 microns (PM_{10}), and particulate matter with an aerodynamic diameter less than 2.5 microns ($PM_{2.5}$);

4.0 Modeling Results and Summary Tables

- **Table A-1**: This table lists the 148 chemical compounds with project-related emission increases, and the associated ESLs. For each of the 148 chemical compounds with a project increase, a MERA Step 2 analysis was performed to determine if project-related increases were below de minimis thresholds. Of the 148 chemical compounds, 68 were below the de minimis thresholds and required no further analysis;

- **Table A-2:** This table includes the MERA Step 3 analysis. For the remaining 80 chemical compounds, a MERA Step 3 (10-percent of ESL evaluation) was performed using UIMs. The project impacts were calculated on **Table A-5**. Out of the 80 chemicals evaluated, 66 of the chemicals passed MERA Step 3, and model-predicted impacts (using UIMs) were less than 10-percent of the ESL making the MERA complete. The remaining 14 chemical compounds were evaluated using site-wide modeling.

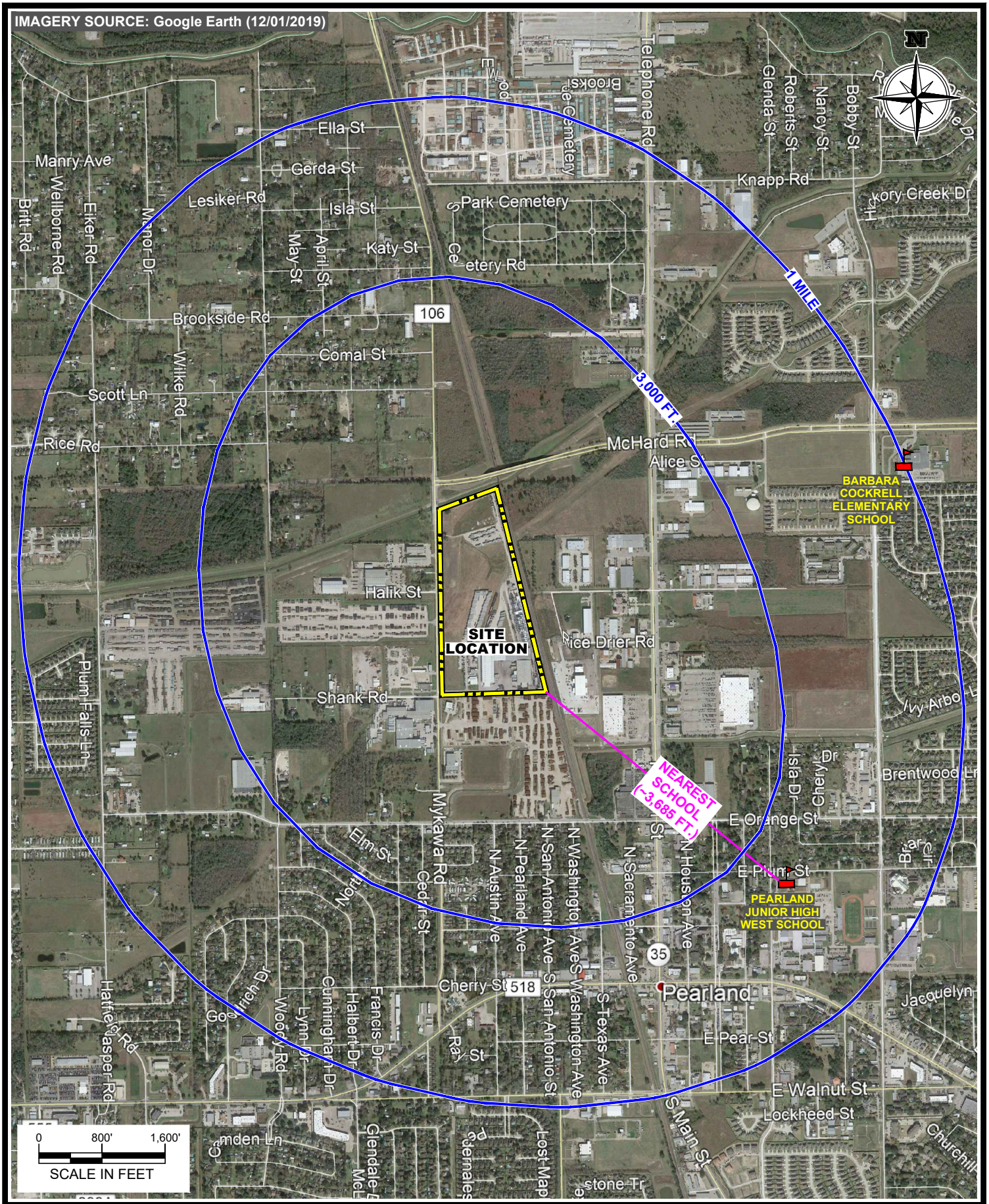
- **Table A-3:** This table presents the site-wide impacts analysis for compounds that did not drop out in MERA Step 3. Site-wide modeling was initially performed using UIMs for the 14 compounds with project increases that did not fall out under the de minimis increases or 10-percent of ESL evaluation. Using UIMs, the model-predicted impacts (GLC_{MAX}) were less than 2xESL for 11 out of the 14 chemicals. All 14 of the chemicals had non-industrial impacts at the GLC_{NI} were less than 1xESL. 13 of the chemicals had annual site-wide impacts of less 1xESL.

  - For the remaining 3 chemicals where site-wide modeling (using UIMs) indicated potential impacts greater than two times the ESL (2xESL) or annual impacts above 1xESL, refined modeling was performed. The site-wide impacts are calculated on **Tables A-7** and **A-8**; and **Table A-3** includes the exceedances for compounds where refined modeling was performed.

- **Table A-4:** This table presents the short-term (lb/hr) and annual (TPY) project-related emission increases. These emission rates were then multiplied by the UIMs detailed in Table A-9 to determine project-increase related offsite impacts for the MERA Step 3 analysis;

- **Table A-5:** This table presents the project-related impacts utilizing the short-term (lb/hr) and annual (TPY) project-related emission increases from **Table A-4**, and the UIMs from **Table A-9**;
- **Table A-6:** This table presents the site-wide emission rates for compounds that didn't fall out in MERA Step 2 or 3;
- **Table A-7:** This table presents the site-wide impacts at the GLC_{MAX} receptors utilizing the short-term (lb/hr) and annual (TPY) emissions from **Table A-6** and the UIMs from **Table A-9**. These impacts were compared to the ESL on Table A-3 to determine whether impacts fall below the requisite ESL thresholds for each averaging period and receptor type. For compounds that exceeded these thresholds, refined modeling was performed to demonstrate that the number of exceedances were below TARA guidelines, and are detailed in the attached EMEW.
- **Table A-8:** This table presents the site-wide impacts at the GLC_{NI} receptors utilizing the short-term (lb/hr) and annual (TPY) emissions from **Table A-6** and the UIMs from **Table A-9**. These impacts were compared to the ESL on Table A-3 to determine whether impacts fall below the requisite ESL thresholds for each averaging period and receptor type. For compounds that exceeded these thresholds, refined modeling was performed to demonstrate that the number of exceedances were below TARA guidelines, and are detailed in the attached EMEW.
- **Table A-9:** This table presents the "worst-case" UIMs utilized for this analysis; and
- **Table A-10:** This table presents the EMEW Model ID Cross-reference table. Due to a limitation in the EMEW, emission rates for different scenarios necessitate the use of a unique Model ID for each source. This table provides a list of the EMEW source IDs utilized, their corresponding AERMOD model ID and a description of the modeling scenario represented.

Modeling Attachments



TRC
16350 PARK TEN PLACE
SUITE 101
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PHONE: 281-616-0100

PROJECT

THIRD COAST PACKAGING, INC.

Pearland, Brazoria County, Texas

SHEET TITLE

Figure 1-1

AREA LOCATION MAP

DRAWN BY:	**O. FONSEKA**
REQUEST BY:	**N. NUSSBAUM**
PROJ. No:	**377803.0000**
DATE:	**OCTOBER 2020**

HOU C:\OF-TRC\DRAFTING-CDrive\PPL-Files\Third Coast\Pearland-TX\377803\ Fig 1-1 - ThirdCoast-Pearland-TX - Area Location Map.dwg 10/01/20

EPN	MODEL ID	PROJECT OR SITEWIDE SOURCE	UTM COORDINATES EAST (METERS)	UTM COORDINATES NORTH (METERS)
RTO-SCRUB	RTO_SCRUB	PROJECT SOURCE	278,028	3,273,918
FUG	FUG	PROJECT SOURCE	278,034	3,273,906
116	116	NON-PROJECT, ON-PROPERTY SOURCE	278,035	3,273,960
FUGPR	FUGPR	NON-PROJECT, ON-PROPERTY SOURCE	278,002	3,274,029
31	S31	NON-PROJECT, ON-PROPERTY SOURCE	278,084	3,273,773

LEGEND

- APPROXIMATE PROPERTY LINE
- POINT SOURCE LOCATION
- VOLUME SOURCE LOCATION
- DOWNWASH STRUCTURE (BUILDING)

McHARD RD.

MYKAWA ROAD

SHANK ROAD

RICE DRIER RD.

Permitted and under construction

RAW_STG

UTILITY

P_TNK357 P_TNK356 P_TNK358 P_TNK355 P_TNK359 P_TNK354 P_TNK360 P_TNK353

FUGPR

PREPOLY

DETAIL AREA
SEE FIGURE 1-2B
(TANKS & TANK IDs)

116

BOILERS

RTO_SCRUB

FUG

LAB2

PUMPS

LAB

OFFICE

MAIN

S31

N W E S

0 100' 200' 400'

SCALE IN FEET
1" = 200'-0"

IMAGERY SOURCE: Google Earth (12/01/2019)

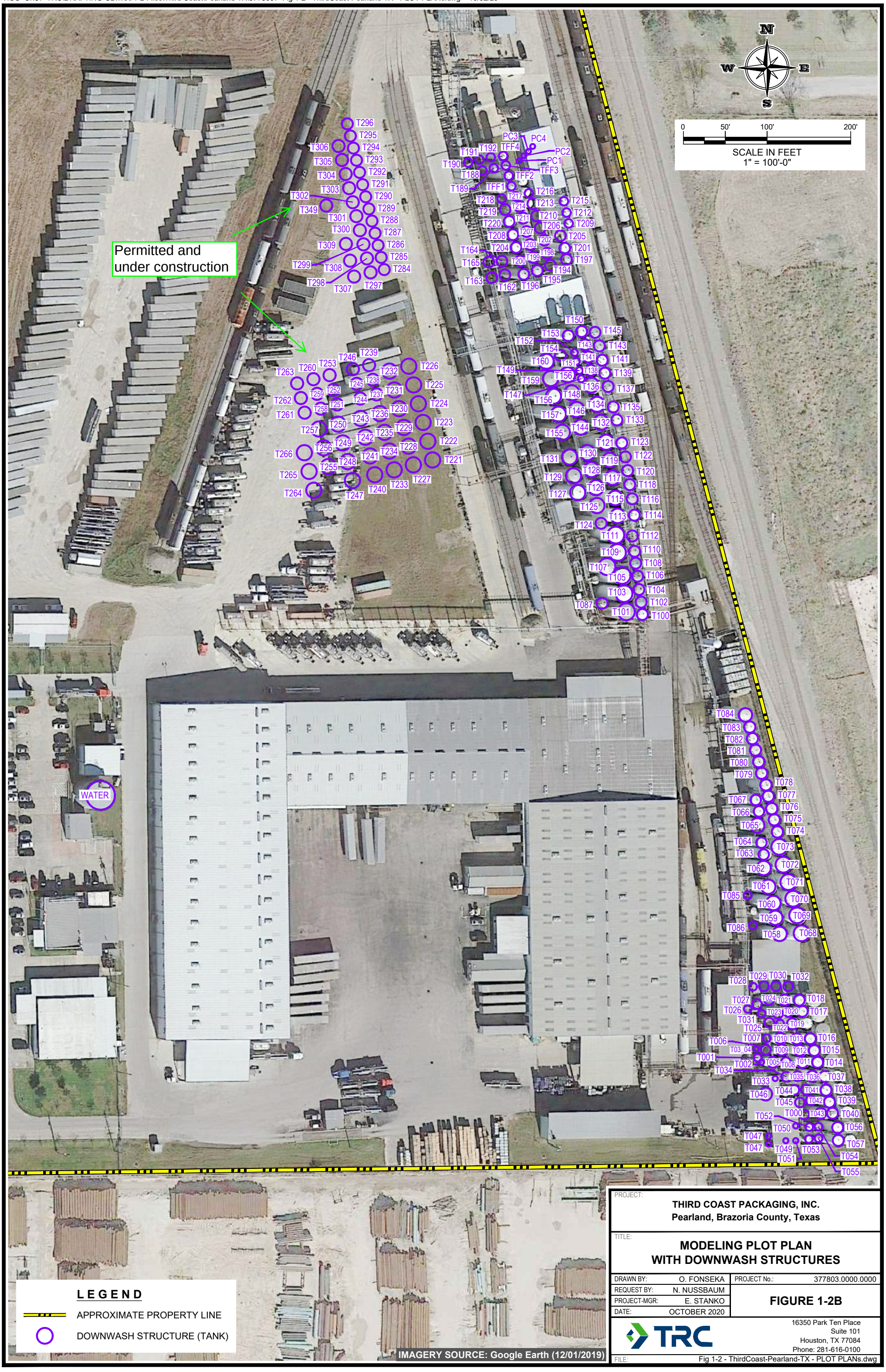
PROJECT:
THIRD COAST PACKAGING, INC.
Pearland, Brazoria County, Texas

TITLE:
MODELING PLOT PLAN
WITH DOWNWASH STRUCTURES

DRAWN BY:	O. FONSEKA	PROJECT No.:	377803.0000.0000
REQUEST BY:	N. NUSSBAUM		
PROJECT-MGR:	E. STANKO		**FIGURE 1-2A**
DATE:	OCTOBER 2020		

TRC
16350 Park Ten Place
Suite 101
Houston, TX 77084
Phone: 281-616-0100

FILE: Fig 1-2 - ThirdCoast-Pearland-TX - PLOT PLANs.dwg



PROJECT:

THIRD COAST PACKAGING, INC.
Pearland, Brazoria County, Texas

TITLE:

MODELING PLOT PLAN WITH DOWNWASH STRUCTURES

DRAWN BY:	O. FONSEKA	PROJECT No.:	377803.0000.0000
REQUEST BY:	N. NUSSBAUM		**FIGURE 1-2B**
PROJECT-MGR:	E. STANKO		
DATE:	OCTOBER 2020		

TRC
16350 Park Ten Place
Suite 101
Houston, TX 77084
Phone: 281-616-0100

FILE: Fig 1-2 - ThirdCoast-Pearland-TX - PLOT PLANs.dwg

Appendix D
Current Permit Authorizations

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 10, 2018

MR GRIF CARNES
VICE PRESIDENT
THIRD COAST PACKAGING INC
1871 MYKAWA RD
PEARLAND TX 77581-3207

Re: Permit Alteration
Permit Number: 92403
Expiration Date: February 15, 2021
Third Coast Packaging, Inc.
Third Coast Terminals
Pearland, Brazoria County
Regulated Entity Number: RN102419330
Customer Reference Number: CN600398150

Dear Mr. Carnes:

This is in response to your letter received October 20, 2017, requesting alteration of the conditions of the above-referenced permit. We understand that you propose to remove Special Condition 6(C)(2) given that the scrubber is controlling chlorinated compounds, inherently cleaning the pH monitoring device. Additionally, you proposed to alter Special Condition 6(C)(3) to reflect a bi-weekly calibration frequency as well as specify that the calibration records be maintained.

In accordance with Title 30 Texas Administrative Code §116.116(c) and based on our review, Permit Number 92403 is altered. Enclosed are the new general conditions (permit face) and altered special conditions. Please attach these to your permit.

You are reminded that these facilities must be in compliance with all rules and regulations of the Texas Commission on Environmental Quality (TCEQ) and of the U.S. Environmental Protection Agency at all times.

If you need further information or have any questions, please contact Ms. Ariel Ramirez at (512) 239-4935 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Re: Permit Number: 92403

This action is taken under authority delegated by the Executive Director of TCEQ.

Sincerely,

Michael Wilson, P.E., Director
Air Permits Division
Office of Air
Texas Commission on Environmental Quality

Enclosure

cc: Director, Environmental Health, Brazoria County Health Department, Angleton
Air Section Manager, Region 12 - Houston

Project Number: 277070

Texas Commission on Environmental Quality
Air Quality Permit

A Permit Is Hereby Issued To
Third Coast Packaging, Inc.
Authorizing the Construction and Operation of
Third Coast Terminals
Located at **Pearland, Brazoria County, Texas**
Latitude 29° 34' 10" Longitude −95° 17' 55"

Permit: 92403
Revision Date: January 10, 2018
Expiration Date: February 15, 2021

For the Commission

1. **Facilities** covered by this permit shall be constructed and operated as specified in the application for the permit. All representations regarding construction plans and operation procedures contained in the permit application shall be conditions upon which the permit is issued. Variations from these representations shall be unlawful unless the permit holder first makes application to the Texas Commission on Environmental Quality (commission) Executive Director to amend this permit in that regard and such amendment is approved. [Title 30 Texas Administrative Code (TAC) Section 116.116 (30 TAC § 116.116)] [1]
2. **Voiding of Permit**. A permit or permit amendment is automatically void if the holder fails to begin construction within 18 months of the date of issuance, discontinues construction for more than 18 months prior to completion, or fails to complete construction within a reasonable time. Upon request, the executive director may grant an 18-month extension. Before the extension is granted the permit may be subject to revision based on best available control technology, lowest achievable emission rate, and netting or offsets as applicable. One additional extension of up to 18 months may be granted if the permit holder demonstrates that emissions from the facility will comply with all rules and regulations of the commission, the intent of the Texas Clean Air Act (TCAA), including protection of the public's health and physical property; and (b)(1)the permit holder is a party to litigation not of the permit holder's initiation regarding the issuance of the permit; or (b)(2) the permit holder has spent, or committed to spend, at least 10 percent of the estimated total cost of the project up to a maximum of $5 million. A permit holder granted an extension under subsection (b)(1) of this section may receive one subsequent extension if the permit holder meets the conditions of subsection (b)(2) of this section. [30 TAC § 116.120]
3. **Construction Progress**. Start of construction, construction interruptions exceeding 45 days, and completion of construction shall be reported to the appropriate regional office of the commission not later than 15 working days after occurrence of the event. [30 TAC § 116.115(b)(2)(A)]
4. **Start-up Notification**. The appropriate air program regional office shall be notified prior to the commencement of operations of the facilities authorized by the permit in such a manner that a representative of the commission may be present. The permit holder shall provide a separate notification for the commencement of operations for each unit of phased construction, which may involve a series of units commencing operations at different times. Prior to operation of the facilities authorized by the permit, the permit holder shall identify the source or sources of allowances to be utilized for compliance with Chapter 101, Subchapter H, Division 3 of this title (relating to Mass Emissions Cap and Trade Program). [30 TAC § 116.115(b)(2)(B)]
5. **Sampling Requirements**. If sampling is required, the permit holder shall contact the commission's Office of Compliance and Enforcement prior to sampling to obtain the proper data forms and procedures. All sampling and testing procedures must be approved by the executive director and coordinated with the regional representatives of the commission. The permit holder is also responsible for providing sampling facilities and conducting the sampling operations or contracting with an independent sampling consultant. [30 TAC § 116.115(b)(2)(C)]
6. **Equivalency of Methods.** The permit holder must demonstrate or otherwise justify the equivalency of emission control methods, sampling or other emission testing methods, and monitoring methods proposed as alternatives to methods indicated in the conditions of the permit. Alternative methods shall be applied for in writing and must be reviewed and approved by the executive director prior to their use in fulfilling any requirements of the permit. [30 TAC § 116.115(b)(2)(D)]
7. **Recordkeeping.** The permit holder shall maintain a copy of the permit along with records containing the information and data sufficient to demonstrate compliance with the permit, including production records and

operating hours; keep all required records in a file at the plant site. If, however, the facility normally operates unattended, records shall be maintained at the nearest staffed location within Texas specified in the application; make the records available at the request of personnel from the commission or any air pollution control program having jurisdiction in a timely manner; comply with any additional recordkeeping requirements specified in special conditions in the permit; and retain information in the file for at least two years following the date that the information or data is obtained. [30 TAC § 116.115(b)(2)(E)]

8. **Maximum Allowable Emission Rates**. The total emissions of air contaminants from any of the sources of emissions must not exceed the values stated on the table attached to the permit entitled "Emission Sources--Maximum Allowable Emission Rates." [30 TAC § 116.115(b)(2)(F)] [1]
9. **Maintenance of Emission Control**. The permitted facilities shall not be operated unless all air pollution emission capture and abatement equipment is maintained in good working order and operating properly during normal facility operations. The permit holder shall provide notification in accordance with 30 TAC §101.201, 101.211, and 101.221 of this title (relating to Emissions Event Reporting and Recordkeeping Requirements; Scheduled Maintenance, Startup, and Shutdown Reporting and Recordkeeping Requirements; and Operational Requirements). [30 TAC§ 116.115(b)(2)(G)]
10. **Compliance with Rules**. Acceptance of a permit by an applicant constitutes an acknowledgment and agreement that the permit holder will comply with all rules and orders of the commission issued in conformity with the TCAA and the conditions precedent to the granting of the permit. If more than one state or federal rule or regulation or permit condition is applicable, the most stringent limit or condition shall govern and be the standard by which compliance shall be demonstrated. Acceptance includes consent to the entrance of commission employees and agents into the permitted premises at reasonable times to investigate conditions relating to the emission or concentration of air contaminants, including compliance with the permit. [30 TAC § 116.115(b)(2)(H)]
11. **This** permit may not be transferred, assigned, or conveyed by the holder except as provided by rule. [30 TAC § 116.110(e)]
12. **There** may be additional special conditions attached to a permit upon issuance or modification of the permit. Such conditions in a permit may be more restrictive than the requirements of Title 30 of the Texas Administrative Code. [30 TAC § 116.115(c)]
13. **Emissions** from this facility must not cause or contribute to "air pollution" as defined in Texas Health and Safety Code (THSC) §382.003(3) or violate THSC § 382.085. If the executive director determines that such a condition or violation occurs, the holder shall implement additional abatement measures as necessary to control or prevent the condition or violation.
14. **The** permit holder shall comply with all the requirements of this permit. Emissions that exceed the limits of this permit are not authorized and are violations of this permit. [1]

[1] Please be advised that the requirements of this provision of the general conditions may not be applicable to greenhouse gas emissions.

EMISSION SOURCES - MAXIMUM ALLOWABLE EMISSION RATES

Permit No. 92403

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

AIR CONTAMINANTS DATA

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates * lb/hr	TPY
RTO-SCRUB	Emissions from Automated Drum Filling			
		VOC	1.71	1.38
		ES	0.42	0.45
		HCl	0.11	0.04
RTO-SCRUB	Thermal Oxidizer Emissions from Natural Gas Combustion (Pilot)			
		NO_X	0.37	1.01
		CO	0.27	0.83
		SO_2	0.01	0.01
		VOC	0.02	0.06
		$PM/PM_{10}/PM_{2.5}$	0.03	0.08
FUG	Equipment Fugitives (4)	VOC	0.01	0.02

(1) Emission point identification - either specific equipment designation or emission point number from plot plan.
(2) Specific point source name. For fugitive sources use area name or fugitive source name.
(3) VOC - volatile organic compounds as defined in 30 Texas Administrative Code Section 101.1
CO - carbon monoxide
NO_X - total oxides of nitrogen
SO_2 - sulfur dioxide
NH_3 - ammonia
HCl - hydrochloric acid
ES - exempt solvent, includes acetone, dichloromethane, and trichloroethane

(4) Emission rate is an estimate and compliance is demonstrated by meeting the requirements of the applicable special conditions and permit application representations.
* Emission rates are based on and the facilities are limited by the following maximum operating schedule:

Hrs/day _____ Days/week _____ Weeks/year _____ or Hrs/year 8,760

Dated August 8, 2011

SPECIAL CONDITIONS

Permit Number 92403

Emission Standards

1. This permit authorizes emissions only from those points listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and the facilities covered by this permit are authorized to emit subject to the emission rate limits on that table and other operating conditions specified in this permit.

Drumming Line Operational and Design Requirements

2. The enclosure housing the *Feige Filler* drum filling machine shall be designed and operated consistent with the specifications in Industrial Ventilation: A Manual of Recommended Practice. The sliding doors in the in-feed and out-feed areas shall be closed during drum filling. A blower system shall be installed which will produce a vacuum in the drum filling machine during loading operations. A pressure transmitter shall be installed on the suction side of the system to verify a vacuum. It is not permissible to load drums in the drum filling machine at any time without the blower vent system in operating condition.

3. All drum loading emissions from the drum filling machine for VOC listed on Attachment II or authorized by Special Condition 4 with a true vapor pressure of 0.5 pound per square inch, absolute (psia) or greater at ambient temperature shall be vented to the recuperative thermal oxidizer. Compounds listed on Attachment III or chlorinated organic compounds authorized by Special Condition 4 shall be vented to the recuperative thermal oxidizer and then to the two-stage quench scrubber. Compounds on Attachment IV and chlorinated inorganic compounds authorized by Special Condition 4 shall be vented to the two-stage quench scrubber and are allowed to bypass the recuperative thermal oxidizer. Compounds on Attachment I or non-chlorinated organic compounds authorized by Special Condition 4 with a true vapor pressure of less than 0.5 pound per square inch, absolute (psia) at ambient temperature may be vented uncontrolled directly to the stack (EPN-RTOSCRUB).

    A. Drum filling of isopropyl mercaptan shall only be performed between the hours of 5:00 AM to 7:00 PM. The maximum drum filling rate of isopropyl mercaptan shall not exceed 715 gallons per hour.

Chemical Flexibility

4. Chemicals authorized under this permit at the drumming line may be pure compounds or mixtures and are limited to those compounds listed in the Allowed Chemicals Lists, Attachments I, II, III, or those determined under the sub-paragraphs below. New compounds may be added through the use of the procedure below, Title 30 Texas Administrative Code Chapter 106 (30 TAC Chapter 106) or 30 TAC Chapter 116.

    A. The Effect Screening Level (ESL) for the new or replacement chemical shall be obtained from the current TCEQ ESL list or by written request to the TCEQ Toxicology Section. The ESL for any new or replacement chemical shall not be less than 2 $\mu g/m^3$. In the case of a mixture, if an ESL for the mixture is not requested nor issued by TCEQ, eligibility will be determined on the basis of the lowest ESL of any constituent compound. "Constituent compounds" include compounds with an initial boiling point at or below 300° F with a concentration of 1.0 percent or more; and compounds with an initial boiling point above 300° F with a concentration of 5.0 percent or more. Compounds that are not "constituent

compounds" are considered "trace compounds." Trace compounds need not be specifically identified, and are not part of this determination. Trace compounds need not be identified nor vented to truck, railcar, or onshore barge abatement devices.

B. Short-term (pounds per hour [lb/hr]) emissions calculations shall be completed for each new or replacement chemical at each EPN. In cases where the annual ESL is < 10% of the short term ESL, the annual emission limit shall also be calculated and the procedures under Special Condition 4 D shall apply to both the short and long term emission limits. Emission rates shall be calculated in accordance with the following methods, as documented in the permit application PI-1 dated 04/22/10: AP-42, Fifth Edition, Sections 1.3 and 5.2, dated January 1995. Calculated emission rates may be adjusted for actual concentration, throughput, and handling temperatures and pressures for the new or replacement chemical.

C. Any new or replacement chemical is exempt from Special Condition No. 4 D if:

(1) it is emitted at a rate and has a short-term Effects Screening Level (ESL) as stated in the following table and the annual ESL ≥ 10% of the short term ESL; or

Emission Rate (lbs/hr)	Short-term ESL (µg/m^3)
≤ 0.04	≥ 2 & < 500
≤ 0.10	≥ 500 & < 3,500
≤ 0.40	≥ 3,500

(2) it has a true vapor pressure at all handling temperatures of less than 0.01 mm Hg (0.0002 psia).

D. For all other new or replacement chemicals the following procedure shall be completed:

(1) Determine the emission rate of each air contaminant that may be emitted from each emission point. The emissions from an EPN may be represented as zero if the contaminant will not be emitted from that EPN. Emissions may be adjusted for actual concentration, throughput, and handling temperatures and pressures. The maximum concentration may be demonstrated using process simulation documentation.

(2) Multiply the emission rate of the air contaminant by the unit impact multiplier for each emission point from the following table to determine the off-property impact (Ground Level Concentration (GLC)) for each emission point. For cases in which the annual impact multipliers must be calculated, the unit multipliers in the following table may be multiplied by 0.08:

Emission Point	Unit Impact (µg/m^3 per lb/hr)
EPN RTO-SCRUB	48.65

(3) Sum the impacts from each emission point/emission point group to determine a total off-property impact (Total GLC_{MAX}) for the new air contaminant. The impact from an emission point may be represented as zero if the contaminant will not be emitted from that EPN.

(4) Compare the total off-property impact to the ESL for the air contaminant as follows:

$$\text{Total } GLC_{MAX} \leq ESL_{SHORT}$$

Where:

$\text{Total } GLC_{MAX}$ = the sum of the GLCs from each emission point.

ESL_{SHORT} = the short-term ESL of new air contaminant from the most current ESL list published by the TCEQ or as specifically derived by TCEQ Toxicology Section. In the later case, the ESL shall be obtained in writing or by email prior to the use of the new or increased air contaminant.

(5) Multiply the short-term off-property impact (GLC_{MAX}) determined in Special Condition No. 4D(3) by 0.08 to determine an annual off-property impact (Annual GLC_{MAX}) for the new or increased air contaminant.

(6) Compare the annual off-property impact to the annual ESL for the air contaminant as shown below to determine if it less than or equal to the ESL.

$$\text{Annual } GLC_{MAX} \leq ESL_{ANNUAL}$$

Where:

ESL_{ANNUAL} = the annual ESL of the new or increased ingredient air contaminant from the most current ESL list published by the TCEQ or as specifically derived by TCEQ Toxicology Division.

E. Emission rates from new air contaminants shall not cause any increases in air contaminant category annual emission rates as listed on the maximum allowable emission rates table (MAERT).

F. No new or replacement chemical listed on the TCEQ Air Pollution Watch List may be authorized under paragraphs A-D of this condition.

Operational Limitations

5. The recuperative thermal oxidizer shall be designed and operated in accordance with the following requirements:

The oxidizer shall achieve a VOC or Exempt Solvent (ES) destruction efficiency of at least 99 percent on an hourly average or maintain the VOC/ES concentration in the exhaust gas less than 10 ppmv.

A. The firebox exit temperature shall be maintained at not less than 1400 °F while waste gas is being fed into the oxidizer. **(08/11)**

(1) The oxidizer exhaust temperature shall be continuously monitored and recorded when waste gas is directed to the oxidizer. The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature measurement device shall be installed, calibrated, and maintained according to accepted practice and the manufacturer's

specifications. The device shall have an accuracy of the greater of ±0.75 percent of the temperature being measured expressed in degrees Celsius or ±2.5ºC.

6. The caustic scrubber shall be designed and operated according to the following requirements:

   A. The scrubber shall operate with no less than 99 percent removal efficiency on an hourly average or maintain the contaminant concentration in the exhaust gas less than 10 ppmv. **(08/11)**

   B. The minimum liquid flow to the absorber shall be 10 gpm. A flow indicator shall monitor the circulation rate and shall be monitored and recorded at least once an hour. The flow indicator shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least annually, whichever is more frequent, and shall be accurate to within 2 percent of span or 5 percent of the design value.

   C. The scrubbing solution shall be maintained at or above a pH of 4.5 (as an hourly average) and shall be monitored as follows:

      (1) The pH shall be continuously analyzed and recorded at least once a minute when the process equipment the scrubber is controlling is in operation. This requirement may be satisfied by keeping records of the scrubbing solution pH in electronic format.

      (2) Each monitoring device shall be calibrated at a frequency in accordance with the manufacturer's specifications, or at least bi-weekly (every two weeks), whichever is more frequent, and shall be accurate to within +/- 0.5 pH unit. Calibration records of the monitoring device shall be maintained.**(01/18)**

7. Quality assured (or valid) data must be generated when a control device is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the oxidizer operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

Piping, Valves, Pumps, and Compressors In Service

8. Audio, olfactory, and visual inspections shall be made of quick connect joints, fittings, and hoses in VOC service during all drum loading operations.

   A. Immediately, but no later than one hour upon detection of a leak, plant personnel shall take the following actions:

      (1) Isolate the leak.

      (2) Commence repair or replacement of the leaking component.

      (3) Use a leak collection/containment system to prevent the leak until repair or replacement can be made if immediate repair is not possible.

   B. If a liquid leak is detected during VOC transfer, then the transfer operation shall cease until the leak is repaired to less than 10,000 parts per million by volume (ppmv) or 20% of the lower explosive limit. VOC loading operations need not be ceased if the first effort to repair the leak is unsuccessful but is documented and the leak is repaired prior to the next VOC transfer.

Date and time of each repair shall be noted in the operator's log or equivalent. Records shall be maintained at the plant site of all repairs and replacements made due to leaks. These records shall be made available to representatives of the Texas Commission on Environmental Quality (TCEQ) upon request.

Throughput and Recordkeeping Requirements

9. The permit holder shall maintain and update monthly an emissions record which includes calculated emissions from all drum filling operations over the previous rolling 12 month period. The record shall include quantity loaded in gallons, name of the liquid loaded, vapor molecular weight, liquid temperature in degrees Fahrenheit, liquid vapor pressure at the liquid temperature in psia. Emissions shall be calculated using AP-42, Fifth Edition, Sections 1.3 and 5.2, dated January 1995.

10. For all constituent compounds subject to Special Condition 4, the permit holder shall maintain records of the information below and demonstrations that all the requirements in this special condition have been satisfied. These records shall be maintained for 24 months or until such time as the additional compounds are added to the Allowed Chemicals List. The following documentation is required for each constituent compound:

    (1) Chemical name(s), composition, and chemical abstract registry number if available.

    (2) True vapor pressure at maximum hourly and annual average storage temperature.

    (3) Molecular weight.

    (4) Storage tanks, loading areas, and fugitive areas where the material is to be handled and the emission control device to be utilized.

    (5) Date new compound handling commenced.

    (6) Material Safety Data Sheet for incoming feed stocks and final products.

    (7) Maximum concentration of the chemical in mole percent (or in weight percent for fugitive areas) in the affected facilities.

    Compounds qualifying under Special Condition 4(C)2, are not subject to the recordkeeping requirements of 3 -7 of this sub-condition.

Stack Emission Sampling

11. Sampling ports and platform(s) shall be incorporated into the design of the recuperative thermal oxidizer and caustic scrubber according to the specifications set forth in the attachment entitled “Chapter 2, Stack Sampling Facilities” of the Texas Commission on Environmental Quality (TCEQ) Sampling Procedures Manual. Alternate sampling facility designs must be submitted for approval to the TCEQ Regional Director.

12. The permit holder shall perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere from EPN RTO-SCRUB to demonstrate compliance with the MAERT and to demonstrate the control efficiencies required by these special conditions. The permit holder is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at his expense. Sampling shall be conducted in accordance with the appropriate procedures of the Texas Commission on

Environmental Quality (TCEQ) Sampling Procedures Manual and the U.S. Environmental Protection Agency (EPA) Reference Methods.

Requests to waive testing for any pollutant specified in this condition shall be submitted to the TCEQ Office of Permitting and Registration, Air Permits Division. Test waivers and alternate/equivalent procedure proposals for Title 40 Code of Federal Regulation Part 60 (40 CFR Part 60) testing which must have EPA approval shall be submitted to the TCEQ Regional Director.

A. The appropriate TCEQ Regional Office shall be notified not less than 45 days prior to sampling. The notice shall include:

(1) Proposed date for pretest meeting.

(2) Date sampling will occur.

(3) Name of firm conducting sampling.

(4) Type of sampling equipment to be used.

(5) Method or procedure to be used in sampling.

(6) Description of any proposed deviation from the sampling procedures specified in this permit or TCEQ/EPA sampling procedures.

(7) Procedure/parameters to be used to determine worst case emissions during the sampling period.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for the test reports. The TCEQ Regional Director must approve any deviation from specified sampling procedures.

B. Air contaminants from the recuperative thermal oxidizer (EPN RTO-SCRUB) to be tested for include VOC or Exempt Solvents (ES). The results shall be shown to demonstrate compliance with the required destruction efficiency of 99 percent or less than 10 ppmv VOC/ES concentration in the exhaust stream. **(08/11)**

C. Air contaminants from the scrubber (EPN RTO-SCRUB) to be tested for include (but are not limited to) HCl. The results shall be shown to demonstrate compliance with the hourly limits on the maximum allowable emission rate table for this EPN and the required removal efficiency of 99 percent or less than 10 ppmv concentration in the exhaust stream. **(08/11)**

D. Sampling shall occur within 60 days after achieving the maximum operating rate, but no later than 180 days after initial start-up of the drumming line and at such other times as may be required by the TCEQ Executive Director. Requests for additional time to perform sampling shall be submitted to the appropriate regional office.

E. The drumming machine shall operate at a rate of 3,300 gallons per hour during stack emission testing. The filling rate and any other primary operating parameters that affect the emission rate shall be monitored and recorded during the stack test. Any additional parameters shall be determined at the pretest meeting and shall be stated in the sampling report. Permit conditions and parameter limits may be waived during stack testing performed under this condition if the proposed condition/parameter range is identified in the test notice specified in paragraph A and accepted by the TCEQ Regional Office. Permit allowable emissions and emission control requirements are not waived and still apply during stack testing periods.

During subsequent operations, if a compound with a vapor pressure greater than the vapor pressure of the compound loaded during the test period, stack sampling shall be performed at the new operating conditions within 120 days. This sampling may be waived by the TCEQ Air Section Manager for the region.

F. Copies of the final sampling report shall be forwarded to the offices below within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions entitled “Chapter 14, Contents of Sampling Reports” of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the appropriate TCEQ Regional Office.

One copy to each local air pollution control program.

Date: January 10, 2018

Permit 92403

Attachment I

UNCONTROLLED CHEMICALS

Acetone cyanohydrin
Aliphatic dibasic esters (DBE), generic
Amyl alcohol, n- (1-Pentanol)
Amyl alcohol, sec- or t- (as amyl alcohol)
Aromatic 150
Benzoic acid
Butanol
Butyl proprionate
Chloroacetic acid
Chloroacetic acid (monochloroacetic acid)
Decylmercaptan
Dichloroacetic acid
Dichlorobenzene, o- (as p-dichlorobenzene)
Dihydroxylbenzene, 1,4- (p-hydroquinone, Hydroxyquinone)
Dipropylene glycol (DPG)
Dodecyl mercaptan (lauryl mercaptan)
Ethyl benzene
Hexadecyl mercaptan (cetyl mercaptan)
Hydroquinone monomethyl ether (methoxyphenol, 4-)
Isoparaffin Solvent (mixture C9 - C11 isoalkanes) (e.g. Isane IP 175)
Methacrylic acid
Methyl styrene, a- (also for m, o,and p-isomers)
Naphthenic Acid
Nonylmercaptan, n-
Octane
Oxalic acid (in solution)
Piperazine
Piperazine dihydrochloride
Polybutenes
Polyisobutylene
Trichloroacetic acid
Trichloropropane, 1,2,3-
Trimethyl acetic acid
Xylene, mixed or all isomers, except p-
Xylene, p-

Date: February 15, 2011

Permit 92403

Attachment II

CHEMICALS CONTROLLED BY RECUPERATIVE THERMAL OXIDIZER

Acetic acid, glacial (ethanoic acid, water free acetic acid)
Acetic anhydride
Acetone Exempt Solvent (ES)*
Acetonitrile
Acrylic acid
Acrylonitrile
Alkylates
Amyl acetate, n-
Butyl acetate, n-
Butyl acetate, tert- (TBAC)
Butyl acrylate
Butyl alcohol, tert- (methyl-2-propanol, 2-)
Butyl ether
Butyl Hydroperoxide, tert-
Butyl mercaptan, n-
Cresylate
Cyclohexane
Cyclohexanone
Cyclohexylmercaptan
Dialkyl phthalates, C6-C11
Diisobutylene
Ethanedithiol, 1,2- (ethylenedimercaptan)
Ethanol
Ethyl acetate
Ethyl acrylate
Ethylene diamine
Ethylene glycol monoethyl ether (Cellosolve)
Formalin (37-50% formaldehyde)
Formic acid
Glutaraldehyde (50%) in solution (e.g. UCARCIDE 250)
Heptane
Heptylmercaptan
Hexamethylenediamine soln.
Hexane
Hexanol
Hexene *Exempt Solvents are listed in 40 Code of Federal Regulations §51.100(s)(2) - (4), as amended on January 21, 2009

Hexyl mercaptan
Hydroxy acetic acid (glycolic acid)
Isoamyl alcohol
Isoamyl ketone
Isobutanol
Isobutyric acid (2-methylpropanoic acid)
Isopropyl alcohol
Isopropyl mercaptan
Mesityl oxide
Methanol
Methoxydihydropyran (MDP)
Methyl acrylate
Methyl amyl alcohol (methyl isobutyl carbinol)
Methyl ethyl ketone
Methyl Isobutyl Ketone
Methyl isopropyl ketone
Methyl methacrylate
Methyl t-butyl ether (MTBE)
Nitroethane
Nitropropane
Nonene
Nonyl mercaptan, tertiary- (as n-nonyl mercaptan)
Octadecyl mercaptan (stearyl mercaptan)
Octene, 1-
Octyl mercaptan
Phenyl mercaptan
Propanol
Propionic acid
Propyl acetate
Propyl mercaptan, n-
Styrene
Toluene
Turpentine

Date: February 15, 2011

Permit 92403

Attachment III

CHEMICALS CONTROLLED BY RECUPERATIVE THERMAL OXIDIZER AND SCRUBBER

Allyl chloride
Carbon tetrachloride (tetrachloromethane, perchloromethane)
Chlorinated solvent
Chloroacetylchloride
Chlorobenzene
Chloroform (trichloromethane)
Dichloroethane, 1,2- (Ethylene Dichloride)
Dichloroethylene, 1,2- (acetylene dichloride)
Dichloromethane (DCM or methylene chloride) ES
Epichlorohydrin
Perchloroethylene (tetrachloroethylene)
Perchloromethyl mercaptan
Propylene dichloride (odor)
Tetrahydrofuran (THF)
Trichloroethane, 1,1,1- (methyl chloroform) ES
Trichloroethylene
Trifluoroacetic acid

Date: February 15, 2011

Permit 92403

Attachment IV

CHEMICALS CONTROLLED BY SCRUBBER ONLY

Hydrochloric Acid (HCl)

Date: February 15, 2011

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 27, 2020

Ms. Joanna Wilson
Environmental Manager
Third Coast Packaging, Inc.
1871 Mykawa Rd
Pearland, TX 77581

Permit by Rule Registration Number: 159633
Third Coast Packaging, Inc.
Project Description/Unit: Third Coast Terminals
City: Pearland, Brazoria County
Regulated Entity Number: RN102419330
Customer Reference Number: CN600398150
30 TAC § 106.261
30 TAC § 106.262
30 TAC § 106.472
30 TAC § 106.473
Affected Permit(s): 92403

This is in response to your Permit by Rule (PBR) registration submitted through the online ePermits process for your facility located near Pearland, Brazoria County. Based on the information submitted and review completed by the Rule Registration Section, this is an acknowledgement that Third Coast Packaging, Inc. has certified emissions associated with Third Coast Terminals under the Permit By Rule(s) listed above. For rule information see: www.tceq.texas.gov/permitting/air/nav/numerical_index.html. Records must be maintained in accordance with Title 30 Texas Administrative Code § 106.8 to demonstrate compliance with the claimed PBRs.

As referenced in 30 TAC § 116.116(d)(2), all changes authorized under Chapter 106 to a permitted facility shall be incorporated into the NSR Permit No. 92403 when it is amended or renewed.

As a reminder, regardless of the authorization mechanism, all facilities must be in compliance and operate in accordance with all rules and regulations of the TCEQ and the U.S. Environmental Protection Agency. Facilities not operating in accordance with these rules and regulations, or that misrepresented or failed to fully disclose all relevant facts in obtaining this authorization may be subject to formal enforcement action.

This action is taken under authority delegated by the Executive Director of the TCEQ. If you need further information or have questions, please contact the Rule Registrations Section at (512) 239-1250 or write to the Texas Commission on Environmental Quality, Office of Air, Air Permits Division, MC-163, P.O. Box 13087, Austin, Texas 78711-3087.

Sincerely,
Kristyn Campbell

Kristyn Campbell, Manager

Rule Registrations Section
Air Permits Division
Texas Commission on Environmental Quality

[Project Number: 310580]

Third Coast Packaging, Inc.
Pearland Facility
Permit By Rule (PBR) §106.261, §106.262, §106.472, §106.473 Registration
January 2020

Table 1-1: Project Emissions Summary

Emission Point Number (EPN)	Emission Source Name	Air Contaminant Name	Existing NSR Permit Allowable [1]		Projected PBR Emission Rates		Proposed Allowable TCEQ Table 1(a)	
			lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
RTO-SCRUB	Emissions from Automated Drum and Tote Filling	VOC	1.71	1.38	2.89	1.42	4.60	2.80
		ES	0.42	0.45	0.31	0.35	0.73	0.80
		HCl	0.11	0.04	0.00	0.00	0.11	0.04
RTO-SCRUB	Thermal Oxidizer Emissions from Natural Gas Combustion (Pilot)	NOx	0.37	1.01	0.45	1.70	0.45	1.70
		CO	0.27	0.83	0.38	1.43	0.38	1.43
		SO_2	0.01	0.01	1.00	3.31	1.00	3.31
		VOC	0.02	0.06	0.02	0.07	0.02	0.07
		PM	0.03	0.08	0.03	0.13	0.03	0.13
		PM_{10}	0.03	0.08	0.03	0.13	0.03	0.13
		$PM_{2.5}$	0.03	0.08	0.03	0.13	0.03	0.13
FUG	Equipment Fugitives	VOC	0.01	0.02	0.003	0.01	0.01	0.03
Total Project Increases		NOx			**0.45**	**1.70**		
		CO			**0.38**	**1.43**		
		SO_2			**1.00**	**3.31**		
		VOC			**2.91**	**1.51**		
		ES			**0.31**	**0.35**		
		PM			**0.03**	**0.13**		
		PM_{10}			**0.03**	**0.13**		
		$PM_{2.5}$			**0.03**	**0.13**		

[1] Maximum Allowable Emission Rates (MAER) per NSR Permit 92403 dated August 8, 2011.